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STATUS OF THE FAMILY FARM

FARM ORGANIZATION AND PERFORMANCE IN THE 1970's

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FOREWORD

This is the fourth and final report to Congress on the Status of the Family Farm. This series of reports was conducted by the U.S. Department of Agriculture in compliance with Public Law 95–113.

In publishing this report, the Committee on Agriculture, Nutrition, and Forestry recognizes that the information contained herein will be helpful to Members of Congress in determining agricultural policy and of interest to the producers of this Nation's food and agricultural products.

JESSE HELMS, *Chairman.*

SUMMARY

This report is c .e of the first to use data from the 1978 Census of Agriculture to observe how farms adapted to the changing economic conditions of the seventies. Most of the major farm trends revealed in previous censuses have continued, but, at a slackened pace.

Those trends include:

A decline in farm numbers.

An increase in farm size (acreage).

A decline in total farmland.

An increase in harvested cropland as a percentage of total farmland.

In addition, however, some earlier trends actually reversed themselves, so that now:

The average age of farmers is declining instead of rising.

The proportion of tenant farmers is rising instead of falling.

The proportion of partnerships is rising for the first time since the sixties.

The trend toward farm incorporation accelerated. The number of corporate farms nearly doubled between 1974 and 1978 to 47,800, but corporate farms still amounted to just slightly more than 2 percent of all farms. The increase in farm incorporation does not mean that American agriculture is being taken over by the executive boardroom; nearly 90 percent of corporate farms are family operated.

The census data also disclosed two important developments in farm size in the seventies:

The number of very small farms with annual sales of between $2,500 and $9,999 rose slightly, especially in the West and the Northeast. Operators of these farms had nonfarm income equal to the U.S. median income. Such farms are clearly rural residences for people with full-time jobs elsewhere.

The number of middle-sized farms declined (annual sales between $40,000 and $100,000). If the number of mid-sized farms continues its decline, American agriculture could be left with essentially two major classes of farms: large farms, producing most of the output, and small farms, producing little and maintained primarily as rural residences.

Farming trends in eight major agricultural counties do not exactly mirror the national trends. The trends in these counties are significant because they may presage the future direction of commercial agriculture. The trends in these counties differed from the national trends in the following ways:

Farm numbers declined faster.

Farm acreage rose faster.

The level of mechanization rose faster.

Full-owner farms declined more rapidly.

Average value of farm assets rose faster.

Average sales per farm rose faster.

The counties where these trends were observed and the types of farms represented were: Whitman County, Washington (wheat farms), McLean County, Illinois (corn-soybean farms), Sunflower County, Mississippi (cotton-soybean farms), Pitt County, North Carolina (tobacco farms), Cherry County, Nebraska (range livestock farms), Delaware County, Iowa (hog-cattle farms), Fresno County, California (diversified irrigated farms), and Marathon County, Wisconsin (dairy farms). These counties were chosen because they are among the chief producers of those commodities and were located in different major agricultural regions of the Nation.

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INTRODUCTION*

From the end of World War II into the late sixties American agriculture was plagued by persistent disequilibrium as production capacity expanded faster than demand for agricultural products. The number of people engaged in agriculture declined—a part of the general outmigration of the rural population to urban areas. As the number of farms declined (small farm numbers declined fastest), the average size of farms grew. Production became increasingly concentrated on fewer farms. Individual farm and regional production became increasingly specialized. The level of mechanization increased. The average age of farm operators increased, and tenancy declined. Increased productivity resulted in an expanding output even though the total land in farms declined. Food supplies were constantly in excess of consumer demand. Farm family income increased, but it lagged behind urban family income.

Most of those trends continued through the seventies, according to the 1978 Census of Agriculture, although the rate of change was slower. Farm numbers, for example, declined less rapidly and average farm size increased less rapidly. Total land in farms declined less rapidly. Excess supply disappeared. The average age of operators fell and tenancy began to rise for the first time since the thirties. The exodus of rural people to the cities abated and many rural areas of the Nation grew in population. The gap between farm and urban family income narrowed.

In this report, we examined how the farm sector adapted to the changing economic climate of the seventies by comparing preliminary data from the 1978 Census of Agriculture with data from the 1969 and 1974 censuses.[1] We were especially looking for changes in farm organization (tenure, type of business structure, farm size, and so forth), and the effect of the current organization characteristics on agricultural performance, that is, on how well the farm sector met the needs of farmers, consumers, and the national interest.

The new trends can be traced to various phenomena—economic, political, and social—of the last decade. Commodity prices, land prices, and petroleum prices increased tremendously; conversion to a floating exchange rate improved the competitiveness of U.S. farm commodities abroad; foreign demand increased; domestic commodity stocks were drawn down; farm income increased and in 2 years per capita farm income (from all sources) exceeded that of the nonfarm sector; and farm income became more variable.

*FARM ORGANIZATION AND PERFORMANCE IN THE 1970's: Fourth Annual Report to Congress on the Status of the Family Farm, by George Coffman, Linda Calvin, Neal Peterson, and Nora Brooks. National Economics Division, Economic Research Service, U.S. Department of Agriculture.

[1] See the Appendix for information on how we compared data among the censuses of agriculture.

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The most important factors influencing the changes, however, were probably:

Inflation.
Strong export demand.
Tax rules.
Nonfarm employment opportunities and their distribution.
Enhanced attractiveness of rural living.

The quality of rural living was upgraded in the seventies by the dispersion of industry into rural areas, by modern telecommunications, and by improved transportation. In addition, the improvement in farm income resulting from strong export demand, coupled with the recession in the industrial economy, made farming more attractive than it had been for years. Together these phenomena may explain the slowdown in the decline of farm numbers.

Land prices were also influenced by those factors. In the last 10 years, land values increased faster than other major assets, because farmland was seen as a safe investment in a period of high inflation. This view of farmland as a hedge against inflation encouraged farmers to expand their holdings, which has intensified the competition for land for farm enlargement. Outside investors, with no special interest in farming, and speculators seeking quick gain were also attracted to farmland investment. In addition, tax rules that were meant to provide special relief to farmers provided beneficial tax breaks to all owners of farmland regardless of whether or not they operated the land themselves. The benefits of these tax rules became capitalized into the price of land. Expecting that land values will appreciate faster than the general inflation rate, owners of farmland are generally unwilling to sell, but may be willing to accept relatively low rental rates. The high price of land, its shrinking availability, high interest rates, and a credit shortage combine to make land rental more feasible than land purchase for entry into farming and for farm expansion. This is particularly true for young people and may explain the increase in tenancy.

How long these trends will last can only be conjectured. Several of the five factors appear to be relatively permanent features of the American economy and society. Inflation may continue into the future, although at substantially lower rates than in recent years. The availability of off-farm employment will likely increase over the long run. Export demand for U.S. agricultural products is expected to become even stronger in the next couple of decades. The appreciation of farmland value, however, may not continue to exceed the rate of inflation; and the cyclical alternation of expansion and contraction in the economy will doubtless continue. The extent of these events, and their timing, will largely determine future changes in the organization of agriculture.

THE U.S. FARM SECTOR, 1978

There were approximately 2.5 million farms in 1978 (1.9 million with sales of $2,500 or more), and about 1,029.7 million acres of land in farms. The average farm contained 450 acres. For the past several decades, the amount of land in farms has been declining, but this decline has begun to slow. Harvested cropland as a percent of total farmland has been increasing but this rate is slowing too. Strong export demand and the concomitant lack of set-aside requirements in Government commodity programs in recent years have been important factors in the increase of harvested cropland. Increases in irrigation have also brought more farmland into crop production.

The farm sector employed about 3.8 million people in 1979 (both family and hired labor). The 1979 farm population was less than 3 percent of the U.S. total population and only 11 percent of the rural population. From 1970–79, the number of farmworkers dropped from roughly 4.5 million to 3.8 million. As labor costs have risen faster than machinery costs, farmers have shifted to more capital intensive operations. New labor-saving technologies and higher quality inputs such as pesticides have reduced labor requirements.

Market value of all farm machinery and equipment increased by 64 percent during the 1974–78 period to a value of $79.5 million. A large amount of the increase in machinery value is probably due to the high rate of inflation during this period.

During 1974–78, inflation increased consumer prices by 32 percent (Consumer Price Index, all products). The value of crops did not keep pace with inflation, but the value of poultry was slightly above the rate of inflation, and the value of livestock rose at almost twice the rate of inflation (table 1). Table 2 shows that the difference between the farm value and the retail value, which is the value added by the processing-marketing sector, has been constant in the last decade.

TABLE 1.—AGRICULTURAL PRODUCTS SOLD AND FARM INCOME, 1974 AND 1978

[Dollar amounts in millions]

Product	1974	1978	Percentage change, 1974–78
Market value of products sold	81,294	108,114	33
Crops [1]	41,790	48,617	16
Livestock and livestock products [2]	33,302	50,913	53
Poultry and poultry products [3]	6,202	8,583	38

[1] Corn, wheat, oats, barley, sorghum, soybeans, cotton, tobacco, Irish potatoes, hay, vegetables, fruits, and nuts.
[2] Cattle and calves (including dairy products), hogs, and pigs, sheep and lambs, and horses and ponies.
[3] Chickens, broilers, and turkeys.

Source: (26); see bibliography.

TABLE 2.—FARMERS' SHARE OF RETAIL FOOD PRICES

[In percent]

Commodity	1970	1980
Poultry	46	55
Dairy	48	52
Meat	53	51
Fats and oils	30	29
Fruits and vegetables, fresh	30	28
Fruits and vegetables, processed	19	18
Bakery and cereal products	16	15
Average for market basket of farm foods	37	37

Source: (16); see bibliography.

The farm sector now plays a more important role in the national economy than it has in earlier decades. U.S. net agricultural products have become increasingly more important sources of foreign exchange. The United States exported $34.7 billion of agricultural products in 1979 (table 3); exports from 1976–79 represented about a third of total U.S. agricultural production. The positive agricultural balance of payments has partially compensated for the negative balance of payments of nonagricultural trade. Over 95 percent of total agricultural exports moved through commercial trade channels in 1979, and the remainder was exported through Government-sponsored aid programs like those authorized under Public Law 480.

TABLE 3.—VALUE OF U.S. AGRICULTURE EXPORTS AND IMPORTS BY MAJOR COMMODITY GROUPS

[In millions of dollars]

Commodities	1977	1978	1979
Exports:			
Grains and preparations	8,713	11,580	14,403
Oilseeds and products	6,615	8,175	8,886
Livestock and products	2,665	3,033	3,765
Fruits, nuts, and vegetables	1,706	2,042	2,475
Other	3,937	4,677	5,216
Total	23,636	29,507	34,745
Imports:			
Livestock and products	2,280	3,107	3,871
Fruits, nuts, and vegetables	1,245	1,527	1,670
Oilseeds and products	601	533	741
Other	9,312	9,637	10,443
Total	13,438	14,804	16,725

Sources: (19, 20); see bibliography.

U.S. wheat exports now account for 40 percent of world wheat trade, having increased by 67 percent from 1965–69 to 1975–79 (table 4). Other coarse grain exports (excluding rice) increased by 183 percent in the same period, raising the U.S. market share of world trade in those grains to 56 percent. Although U.S. exports of soybeans and soy meal increased by 102 percent over this period, Brazilian exports reduced the U.S. share of world trade.

About half of U.S. agricultural exports are sold to developed nations. This market probably will not expand much in the future since those countries' inhabitants will spend a declining percentage of their income on food as their high incomes rise even higher. Any expansion in this market will probably be due to modest population

growth. Exports to developing countries will be dominated by feed grains for livestock production as consumers there add more meat and animal products to their diets. Exports to developing countries are expected to increase since demand in developing countries is increasing faster than production capacity.

TABLE 4.—AVERAGE ANNUAL WHEAT, COARSE GRAIN, AND SOYBEANS AND SOY MEAL EXPORTS

Year	U.S. wheat exports [1]		U.S. coarse grain exports [2]		U.S. soybeans and soy meal exports [3]	
	Million metric tons [2]	Percent of world trade	Million metric tons [2]	Percent of world trade	Million metric tons [2]	Percent of world trade
1965–69	18.93	34	20.35	46	9,847.73	85
1970–74	25.48	39	31.62	48	16,714.41	78
1975–79	31.65	40	57.65	56	19,896.25	59

[1] Year ends June 30.
[2] A metric ton equals 2,204.62 lb.
[3] Excludes rice.
[4] Calendar year.

Sources: (8, 14); see bibliography.

The national economy also plays a more important role in the well-being of the farm sector than in earlier decades because the farm sector has become integrated into the national economy. General economic policy often has more impact on the sector than commodity programs or other specific agricultural programs. World monetary and fiscal policies, which affect the value of the dollar relative to other currencies, have become crucial to the farm economy. In the past, foreign demand was a relatively unimportant factor in determining the well-being of the farm sector.

Farm input markets have become more integrated with national markets and farmers have to compete with nonfarmers for use of limited resources. Farmers are big consumers of petroleum products—diesel, nitrogen fertilizer (a natural gas product), LP gas, and natural gas. The high prices and occasionally tight supply of these products have affected and sometimes disrupted farm operations. Farmers find themselves competing in a national credit market that is not tailored to farmers' needs. Increasing numbers of nonfarmers have invested in land as an inflation hedge, and there has also been a strong demand for farmland for development. Rising land prices have had an important impact on the sector.

Many aspects of the economic environment in which the farm sector operates changed greatly during the seventies, affecting the organization of the sector. The changing organization of the farm sector is the focus of the following section.

CHANGING ORGANIZATION OF THE FARM SECTOR

Most of the trends of past decades are still continuing, but at slower rates. Farm numbers, for example, are still declining, but the rate of change in the 1974–78 period was much slower than in 1969–74, the previous census period. A few trends reversed, however. The percent of operators working 100 days or more off the farm increased after declining in the previous census period. Since off-farm employment is closely related to the profitability of farming, this difference between census periods is easily explained; 1973 and 1974 were exceptionally good years for farmers and 1976 and 1977 were very poor years for most farmers. The average age of farmers—50.1 years—finally began to decline and, for the first time since 1930, the percentage of tenant farmers rose. Sole proprietorships, as a percentage of all farmers, declined and partnerships increased. Table 13, later in the report, presents detailed data on the changing characteristics of the farm sector.

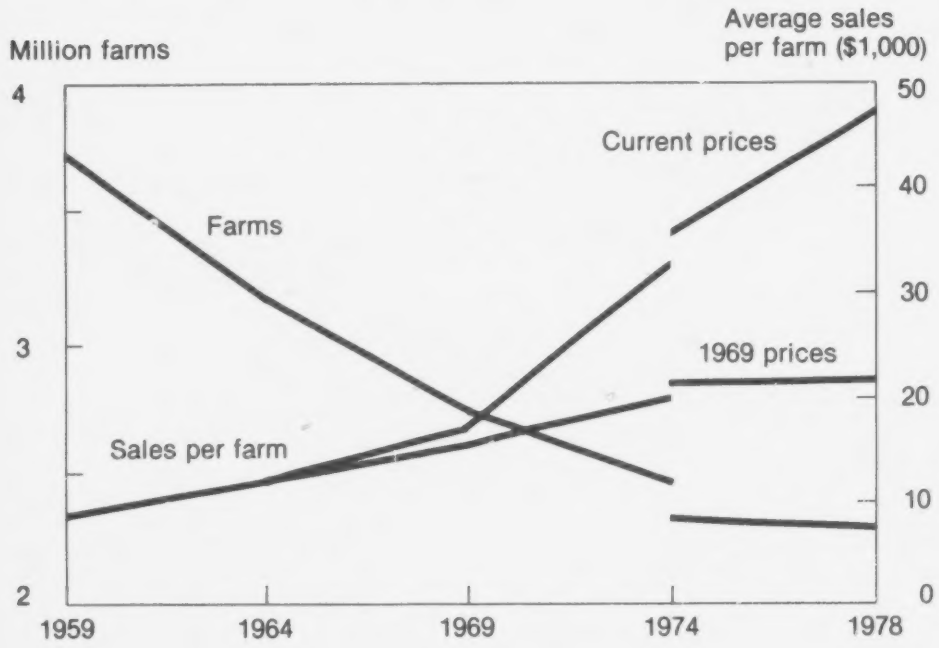
FARM SIZE BY SALES CLASS

The trends for farm numbers and average farm size (as measured by sales of farm products) seem to have changed slightly in the 1974–78 period with a slower increase in average sales (in constant prices) and a slower decline in farm numbers (fig. 1). In current prices, however, average sales continued to increase at a substantial rate.

The gaps in the lines in figure 1 result from the change in farm definition in 1974. The new farm definition requires sales of farm products of $1,000 or more in order to be included in the census statistics. The previous definition, used since 1959, required only $50 of farm product sales from places of 10 acres or larger, or $250 from smaller places.

Much of the increase in number of farms in the larger sales classes has resulted from rising farm prices. The distribution shifted as rising prices pushed farms with a constant volume of output into larger sales classes (fig. 2 and table 5). Prices received by farmers were relatively unchanged from 1959 to 1969, but increased by 59 percent between 1969 and 1974, and another 31 percent from 1974 to 1978.

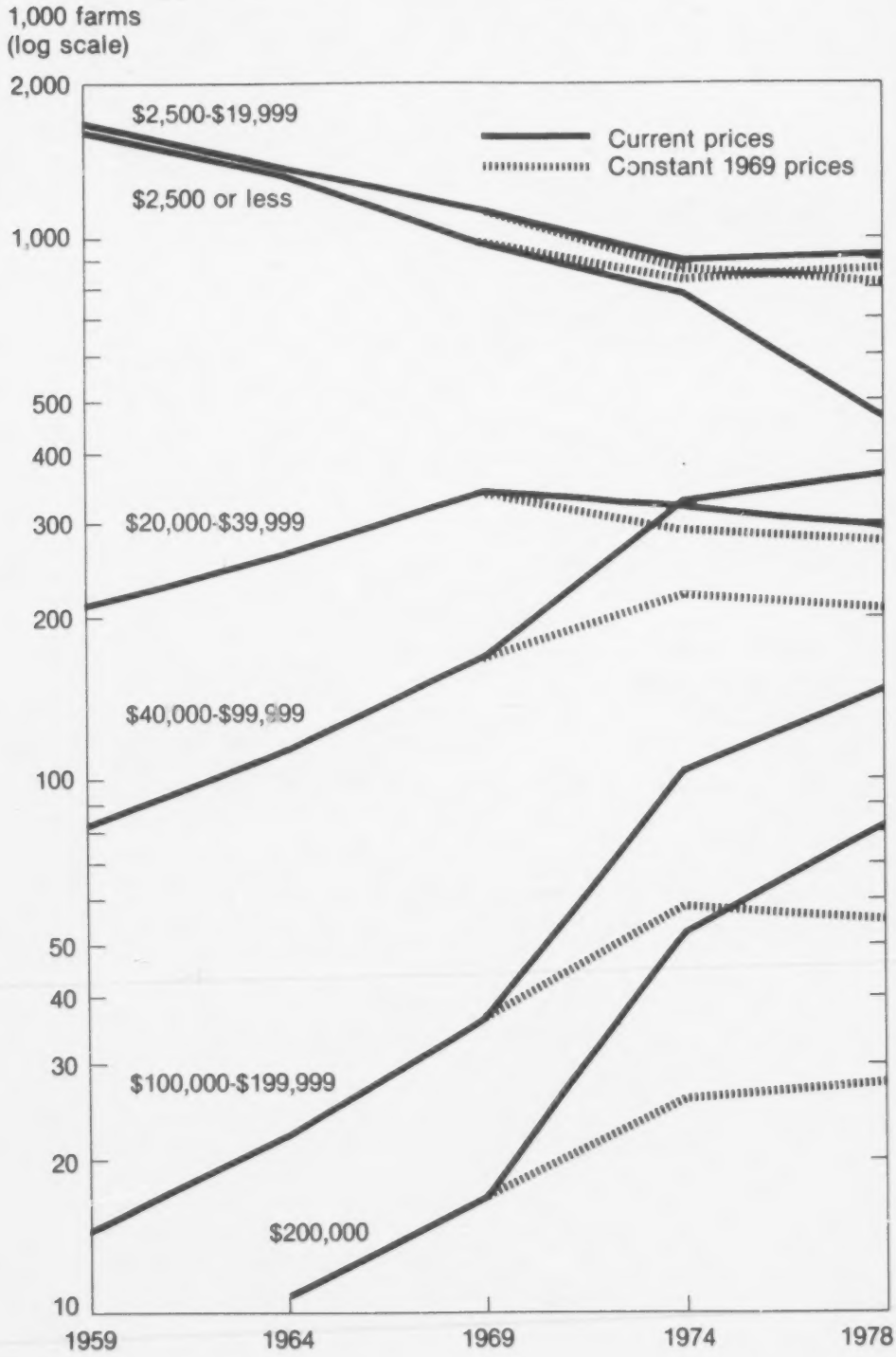
FIGURE 1.—Farm numbers and average sales.



NOTE.—Gaps in lines due to change in farm definition. See text.
Source: (25); see bibliography.

Before 1974, the number of farms with sales above $40,000 rose as smaller farms expanded in size and many small farms were phased out. However, in the 1974–78 period the number of farms with sales of less than $200,000 declined only slightly when measured in constant prices compared with the 1969–74 period; farms with sales of less than $5,000 declined at a slower rate than in the earlier period, and farms with sales from $5,000 to $199,999 declined by less than 3 percent. Farms with sales of $200,000 or more increased by 2.1 percent (table 5).

FIGURE 2.—Farm numbers by sales class, 1959–78.



Source: Derived from (25); see bibliography.

TABLE 5.—PERCENTAGE CHANGES IN FARM NUMBERS WITHIN SALES CLASS DUE TO PRICE CHANGES AND NONPRICE FACTORS, 1969–74 AND 1974–78

Sales class	1969–74			1974–78		
		Changes due to—			Changes due to—	
	Total	Price changes	Nonprice factors	Total	Price changes	Nonprice factors
Less than $2,499	−50.4	−35.7	−14.7	−25.2	−12.1	−13.1
$2,500 to $4,999	−26.6	.6	−27.2	3.8	11.4	−7.6
$5,000 to $9,999	−24.1	−4.1	−20.0	6.1	7.9	−1.8
$10,000 to $19,999	−21.6	−7.0	−14.6	−3.4	−2.2	−1.2
$20,000 to $39,999	−2.8	9.2	−12.0	−6.9	−4.6	−2.3
$40,000 to $99,999	91.1	63.5	27.6	11.2	13.4	−2.2
$100,000 to $199,999	186.7	121.5	65.2	39.4	40.5	−1.1
$200,000 or more	207.8	151.5	56.3	45.9	43.8	2.1
Total	7.8	14.5	−6.7	−2.3	3.2	−5.5

Sources: (23, 24, 25), see bibliography.

The factors influencing trends in farm numbers by sales class may be somewhat different for large and small farms. For example, a strong rural economy helps maintain the number of smaller farms by providing off-farm job opportunities. Farm numbers in the larger sales classes are more likely to be influenced by input and commodity prices, and credit availability. The two size groups are related, as growth by larger farms depends to some extent on acquiring land from smaller farms.

FARM SIZE BY ACREAGE

Sales and acres are the most frequent measures of farm size. For both measures, data are easily available, but both have limitations. Acreage measures fail to capture land quality and exclude other important inputs to production. Consequently, operations with similar acreage may generate outputs of substantially different volume and value. Sales volume does measure total output, but is sensitive to inflation and relative commodity price changes. It fails to capture the input aspect of production, and hence, operations with similar sales may generate substantially different incomes.

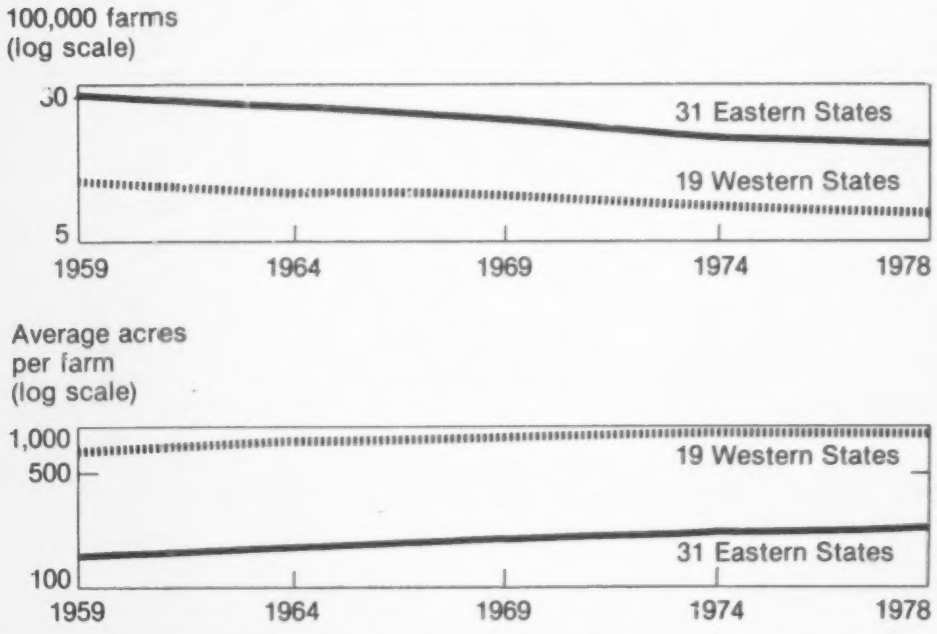
Farms vary considerably in acreage size between the Eastern and Western parts of the United States (fig. 3). Farm size averaged 936 acres in the West, compared with 222 acres in the East, in 1978. However, average farm size, measured in acres, increased at about the same rate in both parts of the country between 1959 and 1974 (fig. 4). A slight slowdown in the rate of increase in farm size is evident for the 1974-78 period. In both regions smaller farms declined in number while larger farms increased. In the East, where farms are generally smaller, farms of less than 500 acres declined in number. In the West, farms of less than 1,000 acres declined. Farm numbers are greater in the East (1.5 million vs. 1 million) and are declining slightly faster than in the West.

CONCENTRATION AND SPECIALIZATION

Concentration of farm sales among fewer farms, like the decline in farm numbers, continued between 1974 and 1978, but at a slower rate than before. The 500,000 largest farms sold 53 percent of the

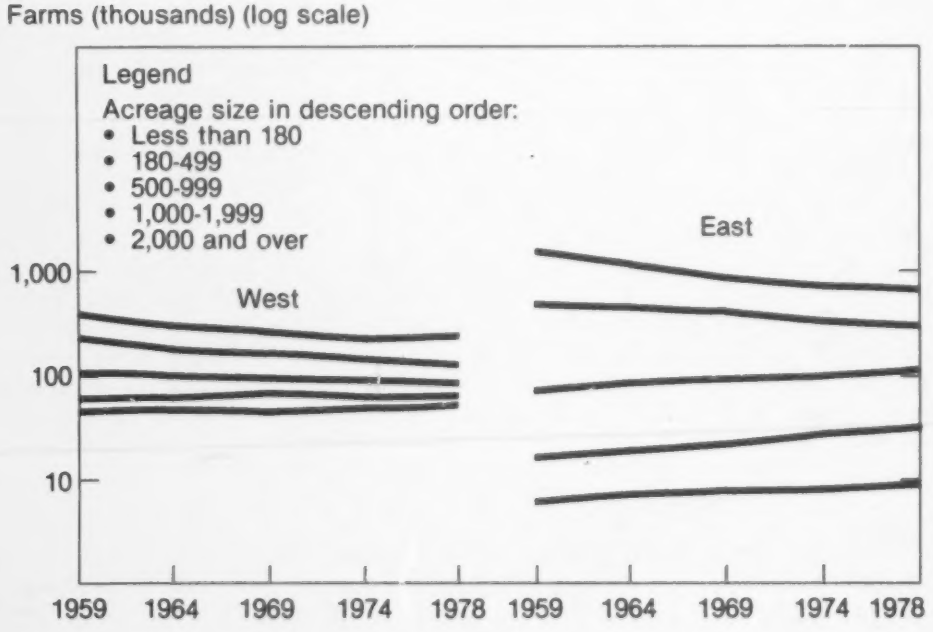
sales output in 1959, 72 percent in 1969, and 78 percent in 1978. The 1,000 largest farms accounted for 6, 9, and 12 percent of total sales in the same time periods.

FIGURE 3.—Farm numbers and average acres.



The 19 western States includes all States from Texas to North Dakota and westerward.
Sources: (22, 23, 24, 25); see bibliography.

FIGURE 4.—Farm numbers by acreage size



Sources: (22, 23, 24, 25); see bibliography.

Similar trends are observed for individual commodities. With the exception of fed cattle, the most recent data on individual commodity concentrations are for 1974. Table 6 shows some examples of increased concentration of individual commodities. The 1,000 largest fed cattle producers accounted for 71 percent of total production in 1979; the 1,000 largest turkey producers accounted for 73.8 percent of total production in 1974 (the most recent data available). The top 10,000 producers of potatoes and eggs provided almost all the U.S. supply of these two commodities in 1974. (Data from the 1978 Census of Agriculture were not available for concentration of production by commodity.)

TABLE 6.—PRODUCTION OF SELECTED COMMODITIES BY THE LARGEST PRODUCERS [1]

Commodity and year	Percent of U.S. production			Total producers (1,000)
	1,000 largest producers	10,000 largest producers	100,000 largest producers	
Wheat:				
1959	5.2	16.6	64.2	715.2
1969	.9	6.2	68.2	503.6
1974	1.4	10.9	67.5	502.6
Corn:				
1959	1.3	4.1	26.2	2,144.3
1969	.9	5.0	36.4	884.0
1974	1.7	6.8	42.4	857.8
Cotton:				
1959	8.2	23.3	72.4	508.4
1969	5.2	32.5	[2]	136.5
1974	8.9	47.0	[2]	80.7
Tobacco:				
1959	2.9	12.5	51.1	415.3
1969	5.7	26.0	90.3	163.2
1974	4.9	33.3	94.2	151.0
Potatoes:				
1969	27.1	95.0	[2]	40.8
1974	38.7	98.9	[2]	33.1
Beef cows:				
1969	6.0	13.2	52.5	739.4
1974	3.7	11.6	55.1	724.6
Fed cattle:				
1965	45.5	[2]	[2]	215.4
1974	65.9	[2]	[2]	140.7
1979	71.0	[2]	[2]	123.4
Milk cows:				
1959	1.2	10.1	32.3	1,836.8
1969	3.8	14.1	59.2	452.9
1974	5.2	21.1	67.4	332.4
Litters farrowed:				
1959	2.0	6.0	38.0	1,142.4
1969	2.0	13.0	64.0	434.5
1974	4.0	21.5	76.0	309.7
Eggs:				
1959	8.6	23.5	65.0	1,099.2
1969	16.4	60.6	90.0	517.6
1974	35.9	94.0	[2]	193.5
Turkeys sold:				
1969	68.9	[2]	[2]	5.4
1974	73.8	[2]	[2]	4.4

[1] Data not available for some years for some commodities.
[2] The point on the estimated curve was too far beyond observed data or exceeds the total number of producers.

Source: Derived from (25), except fed cattle derived from "Cattle on Feed," USDA, Statistical Research Service, various years.

Most farms are highly specialized in the commodity they produce, but the degree of specialization varies considerably among farms by Standard Industrial Classification (SIC—see table 7). For example, in 1974 (most recent data), SIC cotton farms derived 73 percent of their total commodity sales from the sale of cotton; SIC fruit and nut farms derived 95 percent of their sales from the sale of fruits or

nuts. The table also shows that most commodities are produced on specialized farms. Two-thirds of the total commercial U.S. cotton crop originated from SIC cotton farms.

Some specialization is hidden in the data. For example, "other field crops" include grass seeds, potatoes, and sugarcane; "poultry" includes eggs, broilers and turkey operations; and "livestock" includes beef, hog, and sheep operations. Livestock operations usually specialize in only one type of animal.

TABLE 7.—FARM SPECIALIZATION: FARM SALES DERIVED FROM PRIMARY COMMODITY, AND U.S. COMMODITY SALES ACCOUNTED FOR BY SPECIALIZED FARMS

[In percent]

Farm type (SIC)	Farm sales from the primary commodity, as a percent of the farm's total sales			U.S. commodity sales from specialized farms		
	1959	1969	1974	1959	1969	1974
Cash grain	(1)	81	83	(1)	66	80
Tobacco	76	80	77	78	76	76
Cotton	74	69	73	81	53	66
Other field crops	(1)	82	73	(1)	71	68
Vegetables	82	86	84	72	79	77
Fruits and nuts	93	95	95	91	92	93
Poultry	90	94	94	80	95	97
Other livestock [2]	81	97	87	64	72	79

[1] Not available.
[2] Other than poultry and dairy.

Sources: (22, 23, 24); see bibliography.

Specialization and concentration go together. Farms tended to have the greatest degree of specialization in the regions where particular types of farms are concentrated. For example, dairy farms are more specialized in the Northeast and Lake States than in the Corn Belt or Plains. A similar pattern of specialization exists for poultry, tobacco, cotton, and fruit.

Geographic concentration varies considerably by commodity (table 8). The major field crops—wheat, corn, and soybeans—have some of the lowest geographic concentrations of any of the commodities listed in the tables. Corn and wheat concentrations have remained constant in the two time periods and soybean concentration has actually declined. The only other commodity with decreasing concentration was peanuts. The concentration of broiler and turkey production was very high, 74 and 75 percent, respectively. Fruit and vegetable production was also very concentrated. Polk County, Florida, alone accounted for 13 percent of orange production. Fresno County, California, accounted for about a fourth of all U.S. grape production.

The reasons for geographic concentration and shifts in production areas vary by commodity. Climate, soil condition, total volume of production, amount of land required, export demands, perishability, labor requirements of the commodity, and transportation facilities all interact to determine the geographic concentration of production.

TABLE 8.—GEOGRAPHIC CONCENTRATION, SHARE OF U.S. PRODUCTION ARISING FROM 100 LEADING COUNTIES IN THAT COMMODITY

[Percent of United States]

Item	1969	1974
Sales of all farm products	21	22
Dairy product sales	34	37
Beef cows	14	14
Fed cattle sold	49	51
Hogs and pigs sold	28	30
Laying hens	40	45
Broilers sold	73	74
Turkeys sold	68	75
Corn acreage	27	27
Wheat acreage	40	40
Soybean acreage	34	30
Peanut acreage	88	87
Potato acreage	82	84
Cotton acreage	63	69
Tobacco acreage	70	71
Vegetable sales	72	75
Lettuce acreage	95	97
Tomato acreage	85	90
Apple acreage	74	74
Orange acreage[1]	100	100

[1] 50 leading counties.

Source: (24); see bibliography.

The figures in table 8 give only a rough measure of geographic concentration; they represent that percentage of U.S. production of a commodity that come from the 100 leading counties for that commodity. The measure fails to reflect differences in county size, or to reveal the geographic dispersion of the counties, that is, whether the 100 counties were scattered across the Nation or were generally contiguous.

FARM SIZE SUBGROUPS

One of the most significant trends in farm size is the decline in the number of middle-sized farms. If this trend continues, and the number of mid-sized farms declines further, American agriculture could be left with essentially only two classes of farms (a bimodal distribution)—a moderate number of large farms producing most of the output, many small farms producing little, and a few mid-sized farms in transition to one of the other two.

Small farms

The smaller farms (sales of less than $20,000 in 1969 and less than $40,000 in 1978) are a diverse group that can be separated into two types: those where farming is a secondary activity supplementing other income, and those where farming is the primary activity supported, in part, by off-farm income.

For the first type of farm, the owner's primary goal is to maintain a rural residence, often with only minimal farm product sales. Others may sell a larger volume of farm products, while still relying primarily on off-farm income. Older persons in semiretirement, who may have reduced the size of their operations as a transition into retirement, fall into this category. Hay and beef cows are two of the most important commodities raised by small farmers.

The second type of small farm includes young people who consider farming an occupation and hope to expand into larger full-time farming, but may have substantial nonfarm employment in the

interim to help accumulate capital for expanding the farm. Such farmers, however, have a very low likelihood of achieving their goals. Very few farms of this type produce farm income above the level of official poverty standards (about 15 percent of small farms have total incomes below Federal poverty standards).

The number of farms in some of the smaller sales classes ($2,500–$4,999 and $5,000–$9,999) increased between 1974 and 1978, particularly in the West and the Northeast, but overall the number of farms with sales of less than $20,000 is declining (fig. 5). Since these farms now represent 64 percent of all farms they will still be the most numerous type of farm in 2000, even if they continue their historical rate of decline (fig. 6).

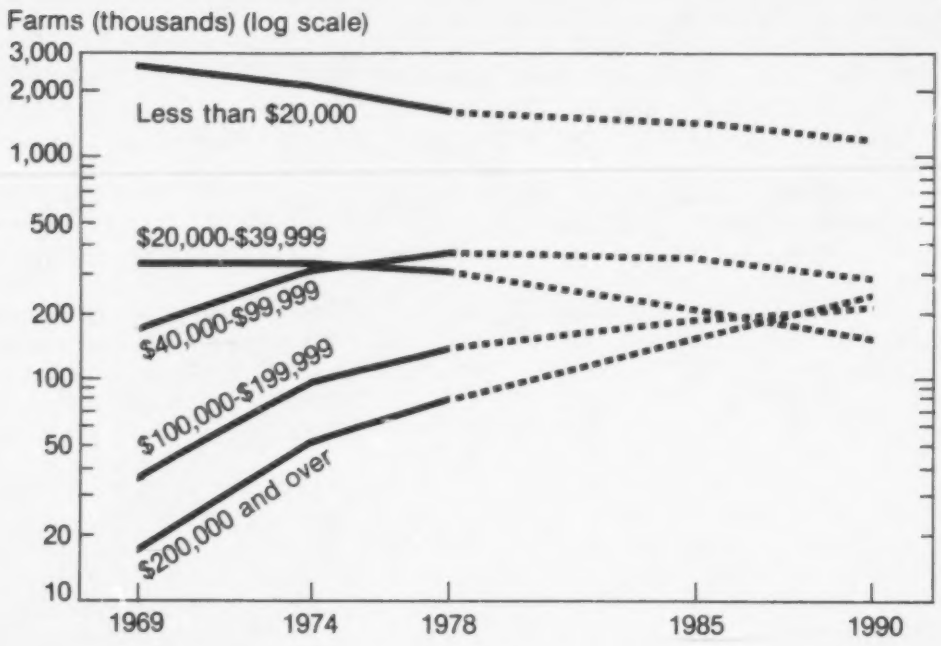
Mid-sized farms

Between these small farms and the large farms is a group of middle-sized farms. The sales range of these farms varies according to the year, region, and type of farm, but in figure 6 they are represented by the $20,000–$99,999 sales group. Farms in the $20,000–$39,999 sales group rapidly declined from 1969 to 1978 and are projected to continue to decline through 1990. By 1985, even the $40,000–$99,999 sales group is projected to decline in number.

These mid-sized farms seem to be too large for part-time farms and too small for full-time farms. Therefore, they are under the greatest adjustment pressure and bear the greatest part of adjustment costs. A few will grow in size. Some will reduce the size of their operations and become part-time farms. Others will phase out as the operator retires or transfers completely to nonfarm employment in search of higher income.

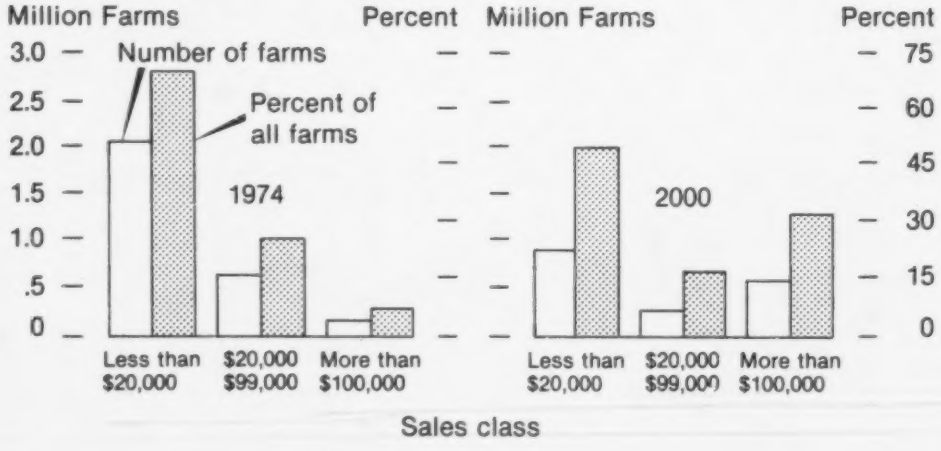
As a result of the attrition of mid-sized farms, a gap between the large farms and small farms is likely to occur (fig. 6). The farm size required to minimize production costs and to earn a satisfactory income level continues to increase. In 1979, the minimum viable farm size was in the $40,000–$99,999 sales class. Assets for such a farm averaged about $378,000 and area averaged 750 acres. Most young people would find it very difficult to gain access to this much capital and land; those who do enter farming will probably do so as a partner or shareholder in a family corporation.

FIGURE 5.—Trends in farm numbers by sales class.



Source: (7); see bibliography.

FIGURE 6.—Distribution of farm numbers by sales, 1974 and projected 2000.



Source: (7); see bibliography.

Large farms

Farms with annual sales of $100,000 or more continued to increase in number and are projected to increase through 1990. There were about 223,000 of these farms in 1978. They accounted for just under two-thirds of total farm product sales and slightly more than one-third of the farmland.

These large farms usually specialize in different commodities than the smaller farms. For example, farms with sales of more than $100,000 per year produced most of the cotton, potatoes, orchard crops, vegetables, laying hens, broilers, and turkeys (table 9). Most of the turkeys and laying hens and about 40 percent of all vegetables and

potatoes were produced by farms with more than $500,000 in annual sales. By contrast, the smaller farms, those with annual sales less than $100,000, produced most of the land-extensive crops (corn, wheat, hay) and nearly three-fourths of the beef cows and tobacco.

Another approach to commodity specialization and farm size is to determine the mix or commodity sales within a sales class. Grains accounted for 33 percent of the sales of farms in the $100,000 to $199,999 sales class and 27 percent for farms in the $200,000–$499,999 sales class (table 10). In the over $500,000 sales class, cattle (mostly fed cattle) and poultry (eggs and turkeys) are the primary sources of receipts.

Farms with annual sales of $500,000 or more are more common in the West and South; one-fifth of the farms with sales of $500,000 or more were in California alone, and California, Texas, Florida, Iowa, and Nebraska account for four-fifths of these largest farms. Farms with annual sales of $100,000–$499,999 are most common in the Corn Belt and the Northern Plains.

Even though large farms (annual sales of more than $100,000) sell nearly two-thirds of farm output, they had only a little more than one-third of the land, buildings, machinery, and equipment (table 11). This is largely a result of the different commodities produced on large and small farms. Grains, hay, and beef cattle produced on smaller farms use more land and have lower value of sales per acre than do fed livestock and specialized crops like fruit, vegetables, and horticulture crops produced on large farms. Also, fed livestock operations have higher investments in inventories such as livestock and feed and higher sales turnover rates per dollar of assets.

TABLE 9.—PRODUCTION OF COMMODITIES BY SALES CLASS, 1978

[Percent of U.S. production]

Commodity (unit)	All farms	Sales less than $100,000	Sales of $100,000 or more			
			Total	$100,000–$199,999	$200,000–$499,999	$500,000 or more
All commodities	100	$38	$62	$18	$17	$27
Crops:						
Corn for grain (bushels)	100	53	47	25	17	5
Wheat for grain (bushels)	100	61	39	19	13	7
Cotton (bales)	100	27	73	19	25	29
Tobacco (pounds)	100	73	27	15	9	3
Potatoes (hundredweight)	100	16	84	16	28	40
Hay (tons)	100	69	31	16	9	6
Orchards (acres)	100	40	60	13	15	32
Vegetables (acres)	100	28	72	12	18	42
Livestock:						
Beef cow inventory (head)	100	72	28	13	9	6
Dairy products sold	100	$48	$52	$24	$15	$13
Hogs and pigs sold (number)	100	51	49	23	18	8
Sheep and lambs sold (number)	100	44	56	14	16	27
Laying hens inventory (number)	100	113	87	14	24	49
Broilers sold (number)	100	18	82	32	36	14
Turkeys sold (number)	100	3	97	7	28	62

Source: Special tabulation of (26); see bibliography.

CHANGES IN TENURE

The number of farm operators who combine owned and rented land for farming increased in 1974–78. Operators who farm only the land they own declined to 56 percent of all operators. Full owners tended to operate smaller farms or farms with large investments in buildings and equipment. The part-owner farms tended to have

larger crop farms and ranches. The number of tenant operators declined from 1930 to 1974 as the land shifted to part-owner operators, but the 1978 Census of Agriculture reported an increase in the number and percentage of tenant-operated farms. This appears to be related to an increase in younger operators who often begin farming on rented land.

TABLE 10.—FARM RECEIPTS FROM SPECIFIED COMMODITIES, BY SALES CLASS FOR FARMS WITH SALES OF $100,000 OR MORE, 1978

[In percent]

Commodities	$100,000–$199,999	$200,000–$499,999	$500,000 or more	All farms
Grain	33	26	7	25
Cotton	3	4	3	3
Tobacco	2	1	(1)	2
Field seed, hay and forage	2	1	1	2
Vegetables and melons	1	3	7	3
Fruits, nuts, and berries	3	4	7	4
Nursery and greenhouse products	1	3	5	3
Other crops	3	4	4	3
Poultry and products	8	13	12	8
Dairy products	14	9	5	10
Cattle and calves	18	21	44	28
Hogs and pigs	10	9	3	7
Sheep and lambs	1	1	1	1
Other livestock	1	1	1	1
Total	100	100	100	100

[1] Less than 0.5 percent.

Source: Special tabulation of (26); see bibliography.

CORPORATE FARMS

Many people think that all farm corporations are very large farms, and that all large farms are incorporated. Neither is true. Nearly half of all farm corporations have sales of less than $100,000 and only 40 percent of farms with sales of $500,000 or more were operated by corporations in 1978. The number of farm corporations has risen dramatically since they were first enumerated in 1969 (table 12). Most corporations are among the larger farming operations and the percentage of incorporated farms increases as farm size and total assets increase.

Incorporation has become a popular method for bringing the younger generation into the farm business and transferring it to them over time. Besides minimizing estate taxes, the corporate form of organization may present some income tax advantages.

TABLE 11.—SELECTED FARM CHARACTERISTICS, BY SALES CLASS, 1978

[In percent]

Item	All farms	Sales of less than $100,000	Sales of $100,000 or more			
			Total	$100,000–$199,000	$200,000–$499,999	$500,000 or more
Farms	100	91	9	6	2	1
Commodity sales	100	38	62	18	17	27
Land in farms	100	64	36	16	12	8
Value of land and buildings	100	64	36	17	12	7
Value of machinery	100	66	34	17	11	6
Tenure:						
Full owners	58	61	29	28	30	37
Part owners	29	26	58	59	59	50
Tenants	13	13	13	13	11	13
Total	100	100	100	100	100	100

Source: (26); see bibliography.

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TABLE 12.—INCORPORATED FARMS[1]

Item (unit)	1969	1974	1978
Farms (thousands)	21.5	28.7	51.3
Land in farms (percent)	9	11	12
Farm sales (percent)	15	18	23

[1] Farms with annual sales of $2,500 or more.

Sources: Special tabulation of (25, 26); see bibliography.

Nearly 90 percent of farm corporations are family owned, and those with 10 or fewer shareholders predominate. There were only about 350 publicly traded corporations with farming operations in 1974 and they sold less than 5 percent of total farm products. These sales were concentrated in a few States—Hawaii, California, Texas, Louisiana, and Florida—and in a few commodities—fed cattle, sugarcane, poultry, canning crops, and nursery stock. The number of publicly traded corporations involved in farming has not changed much since 1974.

CHANGING FARM ORGANIZATION IN SELECTED *COUNTIES*

Aggregate national data on the recent changes in organization of agriculture do not reflect the diversity of agriculture among regions or types of farms (table 13). To overcome that drawback, we developed brief profiles of eight leading agricultural counties, representing different regions and types of farming, to obtain some comparative measures of changing organization at the regional and farm-type levels. The counties and the types of farm we selected were:

Whitman County, Wash., wheat farm.
McLean County, Ill., corn-soybean farm.
Sunflower County, Miss., cotton-soybean farm.
Pitt County, N.C., tobacco farm.
Cherry County, Nebr., range livestock farm.
Delaware County, Iowa, hog-cattle farm.
Fresno County, Calif., diversified irrigated agriculture.
Marathon County, Wis., dairy farm.

WHITMAN COUNTY, WASH.

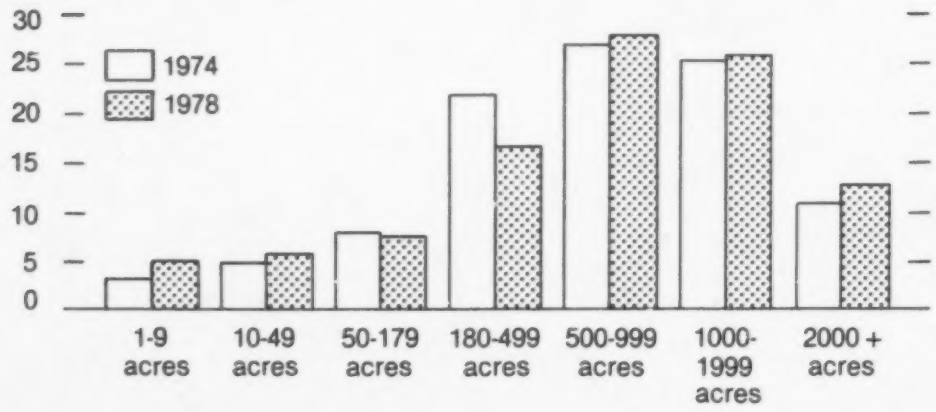
WHITMAN COUNTY—AVERAGE FARM PROFILE

	1974	1978
Size (in acres)	1,025	1,090
Harvested cropland (as percent of total acres)	57	55
Wheat acres (as percent of harvested cropland)	67	64
Wheat yield (bushels per acre)	50	59
Sales [1]	$103,380	$94,550
Value of land [1]	$448,350	$853,050
Value of machinery [1]	$57,890	$100,190
Value of land and machinery [1]	$506,240	$953,240

[1] Current dollars, unadjusted for inflation.

Source: (26); see bibliography.

FIGURE 7.—Whitman County; Distribution of farms by acreage.



Source: (26); see bibliography.

TABLE 13.—RATES OF CHANGE OF FARM CHARACTERISTICS: THE UNITED STATES AND 8 SELECTED COUNTIES

Item	1969–74, United States	1974–78							
		United States [1]	Whitman County (wheat)	McLean County (corn, soybean)	Sunflower County (cotton, soybean)	Pitt County (tobacco)	Cherry County (beef)	Delaware County (hogs)	Fresno County (fruits, vegetables)	Marathon County (dairy)
Farm numbers:										
Number (at end of period)	2,314,013	2,259,178	1,298	2,217	520	1,340	673	1,504	6,924	3,255
Annual percentage rate of change	−4.0	−0.6	−0.6	−0.9	−2.7	−4.0	−0.8	0.1	0.7	−0.7
Total farmland:										
1,000 acres (at end of period)	1,017,030.4	1,015,804.0	1,414.7	754.0	420.1	241.5	3,783.0	348.1	2,045.6	633.4
Annual percentage rate of change	−1.1	−0.03	0.9	0.9	−2.3	1.4	0.3	0.7	0.2	0.2
Average size of farms:										
Acres (at end of period)	440	450	1,090	340	808	180	5,630	231	295	195
Annual percentage rate of change	3.1	0.6	1.5	1.8	0.4	5.6	1.1	0.5	−0.6	1.1
Harvested cropland as percent of total farmland:										
Percent (at end of period)	29.8	31.2	55	90	79	61	11	75	55	50
Annual percentage rate of change	3.0	1.2	−0.3	0.4	4.1	2.3	1.3	1.5	0.3	1.0
Average value of farmland per acre:										
Dollars (at end of period)	336	624	800	2,770	924	1,553	143	1,806	1,860	655
Annual percentage rate of change	11.6	16.7	16.3	20.7	18.0	17.5	12.6	24.3	20.7	19.2
Average value of land per farm:										
Dollars (at end of period)	147,838	280,547	853,046	935,697	734,555	276,786	813,377	424,336	541,641	126,733
Annual percentage rate of change	14.3	17.4	17.4	22.6	18.0	23.7	14.2	25.6	19.6	20.2
Average value of machinery per farm:										
Dollars (at end of period)	22,303	34,505	100,189	72,030	110,966	43,262	47,063	55,025	47,690	37,024
Annual percentage rate of change	17.6	11.5	14.7	15.0	13.0	16.9	10.8	15.6	12.7	13.0
Average sales per farm:										
Dollars (at end of period)	35,231	47,515	94,549	77,612	142,042	77,407	99,034	77,839	147,683	37,113
Annual percentage rate of change	23.8	7.8	−2.2	4.4	10.2	13.5	15.6	10.6	6.2	12.8

Operators working off farm 100 days or more as percent of all operators:										
Percent (at end of period)	35.2	42.1	16.9	23.6	21.5	24.0	16.6	19.1	43.8	30.6
Annual percentage rate of change	—2.2	4.6	4.1	5.6	4.2	7.6	10.4	5.1	3.9	2.4
Average age of operators:										
Years (at end of period)	51.7	50.3	51.3	48.9	47.7	49.1	51.5	45.3	51.2	47.8
Change in years	0.5	—1.4	—0.4	—1.4	—3.9	—1.0	—1.4	—2.4	—1.8	—0.7
Sole proprietorships as percent of total farm numbers: [2]										
Percent (at end of period)	89.5	85.7	69.0	85.3	71.8	82.5	75.1	88.9	79.9	91.0
Annual percentage rate of change	1.0	—1.3	—3.4	—1.1	—3.2	—1.5	—0.6	—0.8	—1.8	—0.8
Partnerships as percent of total farm numbers: [2]										
Percent (at end of period)	8.6	11.5	15.0	11.7	18.2	15.0	12.2	9.1	13.4	6.9
Annual percentage rate of change	—7.7	7.6	7.7	7.1	13.0	7.8	—1.0	5.0	7.7	10.1
Corporations as percent of total farm numbers: [2]										
Percent (at end of period)	1.7	2.8	15.5	1.8	9.7	2.0	11.3	2.0	6.2	2.1
Annual percentage rate of change	6.3	13.8	15.2	32.0	10.7	14.4	5.4	33.8	12.0	10.6
Full owners as percentage of total farm numbers:										
Percent (at end of period)	61.5	57.5	32.4	26.5	26.7	31.9	43.8	61.3	73.4	65.8
Annual percentage rate of change	—0.4	—1.8	—0.5	—4.8	—10.1	—5.5	1.6	—1.7	—0.3	—2.2
Part owners as percent of total farm numbers:										
Percent (at end of period)	27.2	30.2	46.1	37.8	43.3	34.2	42.0	21.9	17.7	30.4
Annual percentage rate of change	1.9	2.6	1.1	2.4	3.9	6.3	—1.3	3.6	—0.5	4.6
Tenants as percent of total farm numbers:										
Percent (at end of period)	11.3	12.3	21.5	35.7	30.0	33.9	14.1	16.8	8.9	3.7
Annual percentage rate of change	—2.5	2.2	—1.5	1.7	8.0	0.5	—0.7	2.5	3.5	9.2

[1] 1978 census figures for U.S. totals adjusted for comparability with 1974 census. See appendix.
[2] Census data available only for farms with sales greater than $2,500.

Sources: (24, 26); see bibliography.

Whitman County, located in the Palouse area of southeastern Washington, was the top wheat-producing county in 1974 (1978 county rankings not yet available). The county's agriculture is almost entirely cash grain. Ninety-one percent of the value of agricultural products sold comes from crops. Wheat accounts for 64 percent of harvested cropland. Other major crops grown are barley (16 percent of harvested cropland) and dry peas (9 percent of harvested cropland). Barley acreage rose by almost 40,000 acres between 1974 and 1978, while wheat acreage dropped by about 21,100 acres. Beef, though of minor importance, is the major livestock enterprise. The average herd size increased from 837 to 1,037 head.

The changes in Whitman County were similar to the general changes in all eight counties in many respects, but differed in others. The number of sole proprietorship farms declined rapidly, but the number of corporations and partnerships increased, so that the decline in overall farm numbers was not unusual. The proportion of corporate farms, already 15 percent of all farms in Whitman County in 1974, continued to increase about as fast as in the other seven counties.

The national farm trends of a declining average age of farm operators and an increasing proportion of tenancy were scarcely noticeable in Whitman County. Young farmers with little equity or capital undoubtedly find the scale of farming there prohibitive and are discouraged from entering farming. Low grain prices and high input prices make tenant farming an unprofitable way to operate.

MC LEAN COUNTY, ILL.

McLean County, Illinois, was the top corn-producing county in 1974. It is located in the central Corn Belt, where cash grain farms are the rule, and corn and soybeans are the dominant crops. McLean County farms derived 85 percent of their agricultural income from the sale of crops in 1978. The 15 percent of their income derived from livestock was principally from beef and hogs, both of which declined in 1974–78. McLean County became increasingly specialized in corn and soybeans. During this period, the acreage planted to soybeans and corn both expanded, while the acreage planted to wheat, oats, and hay shrank.

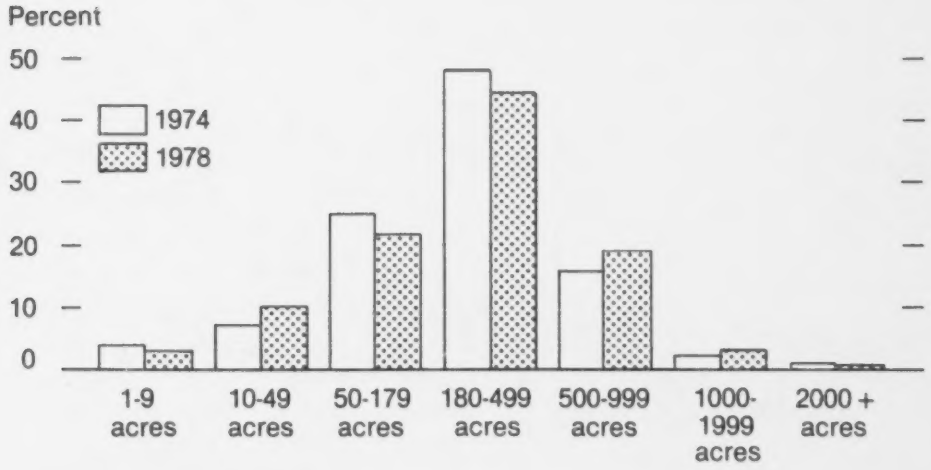
McLEAN COUNTY—AVERAGE FARM PROFILE

	1974	1978
Size (in acres)	316	340
Harvested cropland (as percent of total acres)	89	90
Corn acres (as percent of harvested cropland)	56	57
Soybean acres (as percent of harvested cropland)	40	41
Corn yield (bushels per acre)	90	118
Soybean yield (bushels per acre)	28	40
Sales [1]	$65,260	$77,610
Value of land [1]	$413,560	$935,700
Value of machinery [1]	$41,220	$72,030
Value of land and machinery [1]	$454,780	$1,007,730

[1] Current dollars, unadjusted for inflation.

Source: (26); see bibliography.

FIGURE 8.—McLean County: Distribution of farms by acreage.



Source: (26); see bibliography.

Changes in McLean County diverged in several categories from the general trend of change in the eight selected counties. The average size of farms grew considerably, due as much to the drop in farm numbers as to the great increase in total farmland. The average value of land and buildings per farm increased greatly, as did the value of machinery per farm. The average sales per farm increased, but at a low rate, unlike the general trends elsewhere, due to lower corn prices in 1978 than in 1974.

McLean County had the smallest proportion of corporate farms of the eight counties studied; but the number of corporations grew rapidly, second only to Delaware County. Despite the increase in the number of corporations, the rate of decline in individually operated farms was lowest of all eight counties because McLean County originally had a very high proportion of individually operated farms.

SUNFLOWER COUNTY, MISS.

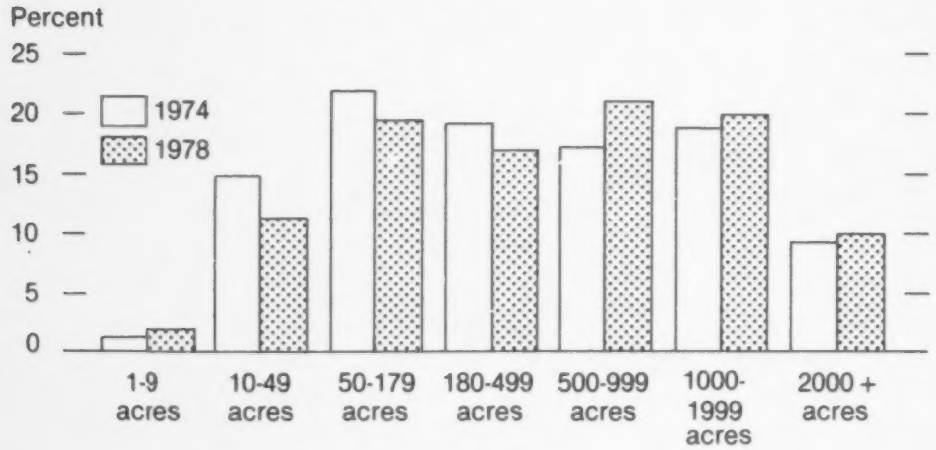
SUNFLOWER COUNTY—AVERAGE FARM PROFILE

	1974	1978
Size (in acres)	795	808
Harvested cropland (as percent of total acres)	68	79
Cotton acres (as percent of harvested cropland)	66	43
Soybean acres (as percent of harvested cropland)	26	46
Cotton yield (pounds per acre)	384	480
Soybean yield (bushels per acre)	15	17
Sales [1]	$96,230	$142,040
Value of land [1]	$378,370	$734,560
Value of machinery [1]	$67,970	$110,970
Value of land and machinery [1]	$446,340	$845,530

[1] Current dollars, unadjusted for inflation.

Source: (26); see bibliography.

FIGURE 9.—Sunflower County: Distribution of farms by acreage.



Source: (26); see bibliography.

Sunflower County, Mississippi, was the fourth largest cotton-producing county in the Nation in 1974, and the leading county outside of California. It is located in the rich delta plain of the lower Mississippi Valley, where the major crops are cotton, soybeans, and rice. In Sunflower County, cotton accounted for 43 percent of harvested acres, soybeans for 46 percent, and rice for 10 percent. This composition of crops changed dramatically from 1974, when cotton was 66 percent of harvested acres, soybeans 26 percent, and rice 4 percent. The acreage planted to rice and soybeans doubled in 1974–78, while cotton acreage declined by 30 percent. Livestock and poultry represent a minor component of agricultural sales—4 percent in 1974 and 6 percent in 1978. There has been a shift away from cattle toward hog operations of more than 1,500 head.

Many aspects of organizational change were more extreme in Sunflower County than in the United States in general or in the eight counties selected here. The importance of individually operated farms declined greatly and that of partnership operations increased rapidly (the increase in corporations was only average, and less than that of partnerships). Fully owned farms declined considerably, while tenancy grew at a rapid rate. The average age of operators fell by nearly 4 years, probably indicating an influx of young farmers with low equity and capital, who seek partnership, part-ownership, and tenancy as a means of entering farming. Although the loss in farm numbers was very high and, contrary to trends elsewhere, the amount of farmland declined by 8 percent, harvested cropland grew more rapidly than in most other places.

PITT COUNTY, N.C.

Pitt County, North Carolina, ranked number one in U.S. tobacco production in 1974. The county is in the coastal plain of eastern North Carolina, a region specializing in Flue-cured tobacco. Flue-cured tobacco farming is undergoing a major reorganization as a result of the introduction of mechanized harvest methods to replace hand

harvesting (*3*). This reorganization is evidenced by a variety of trends in Pitt County that are far in excess of the general trends of the other seven counties. The county's farm numbers declined precipitously while the county greatly increased its total amount of farmland, the average size of farms, the acreage of harvested cropland, the average value of machinery per farm, and the average value of sales. The number of corporate farms in Pitt County, already high in 1974, had risen even further by 1978.

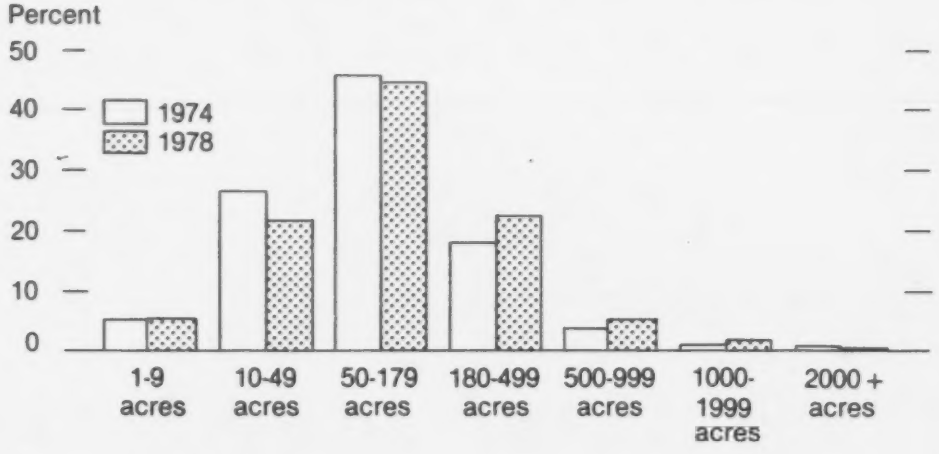
PITT COUNTY—AVERAGE FARM PROFILE

	1974	1978
Size (in acres)	145	180
Harvested cropland (as percent of total acres)	55	61
Tobacco acres (as percent of harvested cropland)	16	17
Tobacco yield (pounds per acre)	2,044	1,983
Sales [1]	$46,610	$77,410
Value of land [1]	$118,261	$276,790
Value of machinery [1]	$23,151	$43,260
Value of land and machinery [1]	$141,412	$320,050

[1] Current dollars, unadjusted for inflation.

Source: (26); see bibliography.

FIGURE. 10.—Pitt County : Distribution of farms by acreage.



Source : (26) ; see bibliography.

Full ownership declined considerably, and part-ownership increased greatly in importance. The increase in the value of land per farm was unusually high as a result of increasing land values (per acre) and the large increase in the average size of farms. The proportion of farmers who worked 100 days or more off-farm increased rapidly, presumably reflecting those who did not enlarge their farm operations.

Not all those changes are due to new tobacco production techniques. Other important crops are corn (45 percent of harvested cropland) and soybeans (about 30 percent); and although crop sales accounted for 76 percent of all sales, livestock and poultry became more important as hog operations and egg operations expanded in size and number.

CHERRY COUNTY, NEBR.

CHERRY COUNTY—AVERAGE FARM PROFILE

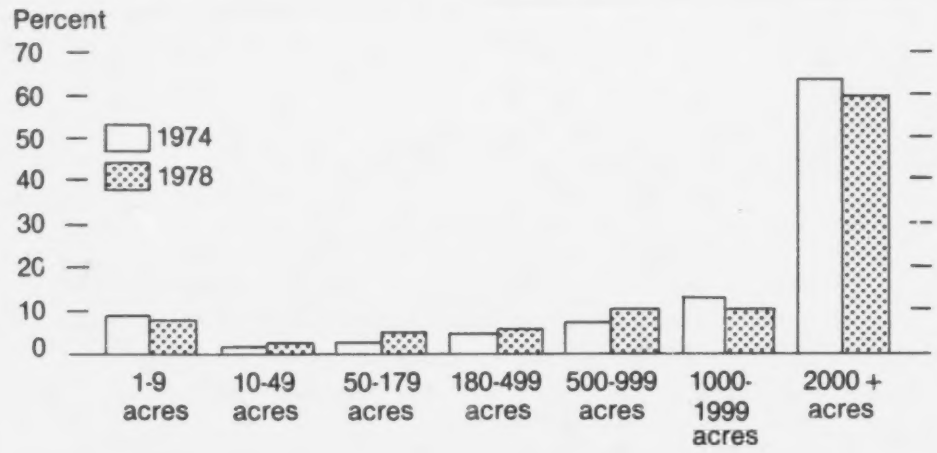
	1974	1978
Size (in acres)	5,394	5,630
Harvested cropland (as percent of total acres)	10	11
Herd size (head)	452	551
Cattle and calves sold (head)	215	239
Sales [1]	$55,463	$99,034
Value of land [1]	$478,928	$813,377
Value of machinery [1]	$31,199	$47,063
Value of livestock [1]	$70,280	$125,635
Value of land, machinery and livestock [1]	$580,407	$986,175

[1] Current dollars, unadjusted for inflation.

Source: (26); see bibliography.

Cherry County, Nebraska, had more beef cows than any other county in 1974. The county's farming pattern is dominated by large farms and ranches (fig. 11), has a great many corporate farms (12 percent of the total), and a rather large proportion of part-ownership farms as well. Contrary to what appears to be happening elsewhere, Cherry County increased its proportion of mid-sized farms and reduced its proportion of both the smallest and largest sizes of farms. However, the average farm size in the county still increased between 1974 and 1978.

FIGURE 11.—Cherry County: Distribution of farms by acreage.



Source: (26); see bibliography.

The change in the size distribution may be related to other unusual trends. Corporations, which are usually larger operations, increased in number very slowly while partnerships, part-ownership, and tenancy all declined in importance. Cherry County was the only county studied where the proportion of full ownership (usually small and medium-sized farms) actually increased. Farm operators' reliance on off-farm employment increased more than in any of the other seven counties. Both the value of land (per farm and per acre) and the value of machinery per farm increased, but by relatively

small amounts. Sales, however, increased greatly, due primarily to increases in livestock sales. The growth in livestock sales occurred mostly on large farms. Although the acres planted to corn, wheat, and hay increased, and the irrigated cropland in the county increased rapidly, crop sales accounted for a smaller fraction of total sales in 1978 than in 1974.

DELAWARE COUNTY, IOWA

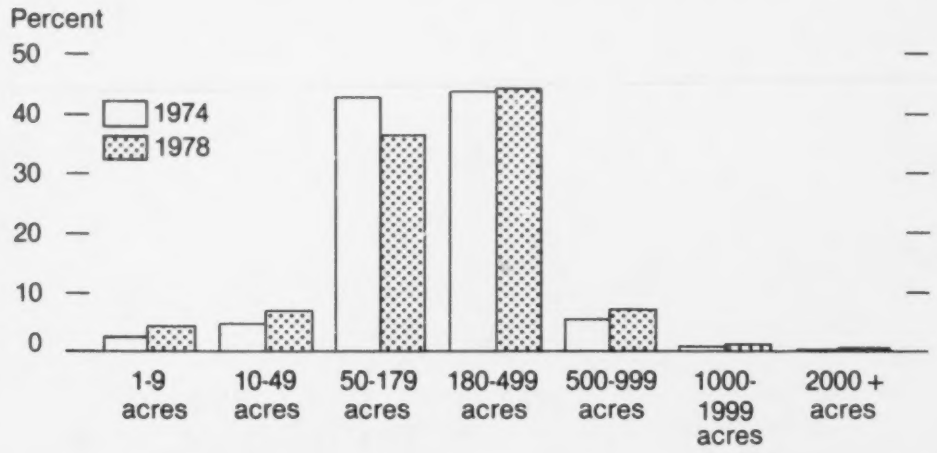
DELAWARE COUNTY—AVERAGE FARM PROFILE

	1974	1978
Size (in acres)	226	231
Harvested cropland (as percent of total acres)	71	75
Cattle herd size (head)	54	56
Hogs and pigs herd size (head)	190	249
Sales [1]	$52,098	$77,839
Value of land [1]	$170,436	$424,336
Value of machinery [1]	$30,761	$55,025
Value of land and machinery [1]	$201,197	$479,361

[1] Current dollars, unadjusted for inflation.

Source: (26); see bibliography.

FIGURE 12.—Delaware County: Distribution of farms by acreage.



Source: (26); see bibliography.

Delaware County, in eastern Iowa, ranked second in the country in producing hogs in 1974. The number one county, located in Illinois, was not selected in order to give the sample greater geographic variety. Livestock, principally hogs, beef, and dairy, were more important than crops (primarily corn, soybeans, and hay) as a source of income, accounting for 79 percent of the value of all agricultural products sold in 1978—a slight increase over 1974. Hog operations are rather small. The larger hog operations, those with more than 500 hogs, increased in number and in the average size of their operation (767 head in 1974; 825 head in 1978). The smaller operations, less than 500 hogs, declined in number, but increased in average size (197 head in 1978, up from 175 head in 1974). The county had high rates of increase in the value of land and machinery per farm, and in the

proportion of corporate farms. The rate of increase in corporations was the highest of the eight counties examined. The county was also unusual in that the number of farms in the county did not decline, but grew slightly. This growth occurred in the larger and smaller sizes, while farms between 50 and 180 acres declined in number.

FRESNO COUNTY, CALIF.

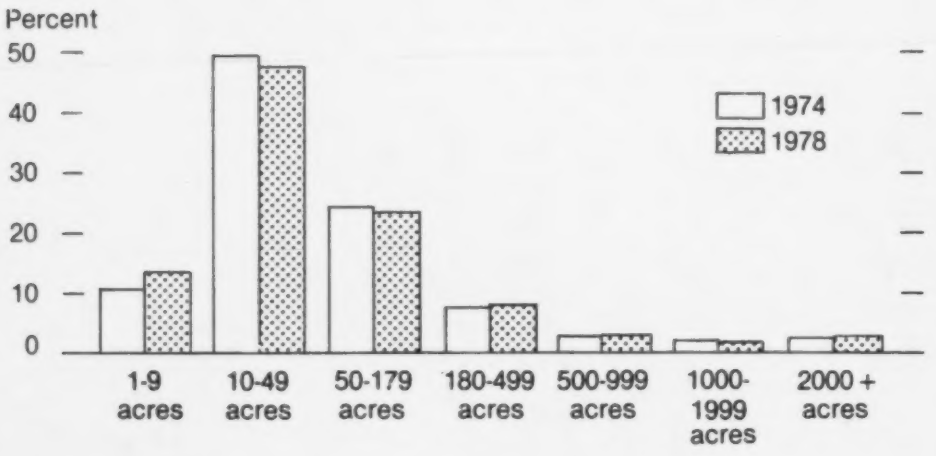
FRESNO COUNTY—AVERAGE FARM PROFILE

	1974	1978
Size (in acres)	302	296
Harvested cropland (as percent of total acres)	54	55
Cotton acres (as percent of harvested cropland)	31	34
Orchard acres (as percent of harvested cropland)	25	26
Grape acres (as percent of harvested cropland)	17	17
Barley acres (as percent of harvested cropland)	16	14
Vegetable acres (as percent of harvested cropland)	7	8
Sales [1]	$116,028	$147,683
Value of land [1]	$264,555	$541,641
Value of machinery [1]	$29,598	$47,690
Value of land and machinery [1]	$294,153	$589,331

[1] Current dollars, unadjusted for inflation.

Source: (26); see bibliography.

FIGURE 13.—Fresno County: Distribution of farms by acreage.



Source: (26); see bibliography.

Although no county in California can be said to be representative of the State's agricultural diversity, Fresno County, in California's San Joaquin Valley, was chosen for a variety of reasons: it was number one in the Nation in value of agricultural products sold, number one in the number of farms, and number one in cropland acreage harvested in 1974.

All the harvested cropland in Fresno County is irrigated. Crops are of greater value than livestock and poultry, accounting for 70 percent of the value of agricultural products sold. However, livestock and poultry increased their share by about 8 percent between 1974 and 1978. The major crops are cotton, fruits, nuts, grapes, barley, and vegetables.

In a number of ways, the changes in Fresno County are atypical of those in the Nation as a whole and in the group of eight counties. The number of farms actually increased from 1974 to 1978, the only county of the eight with a significant increase. The increase in total farmland did not keep pace with the increase in farm numbers, and as a result Fresno County was the only one of the eight to experience a decline in average farm size. The proportion of part owners fell rapidly, between 1974 and 1978, as did the average age of operators. This pattern of change suggests a large influx of young farmers operating small amounts of acreage. This hypothesis is supported by several other observations:

The number of farms under 10 acres grew considerably, while those between 10 and 180 acres declined.

Cattle operations with less than 20 head grew in number, while the average herd size of those operations shrank from 9 to 7. At the same time, operations with more than 500 head increased both in number and herd size.

Hog operations of fewer than 100 head grew in number and the average herd size declined slightly, from 13 to 12.

Poultry operations with fewer than 1,600 chickens increased from 198 to 277, while the average flock size of those farms declined from 43 to 25.

MARATHON COUNTY, WIS.

Marathon County, in north central Wisconsin, was one of the largest dairy counties in the Nation in 1978. Changes in farm numbers and average farm size in Marathon County did not differ much from the rest of the United States, and the other major agricultural counties between 1974 and 1978. In other ways it was not so typical. The total amount of land in farms increased very little during the period. There was a very rapid growth in the proportion of tenants and part owners, but full owners were still in the majority, 68 percent. The average sales per farm increased substantially, and the proportion of operators who worked 100 days or more off-farm increased at a much lower rate than in the seven other counties.

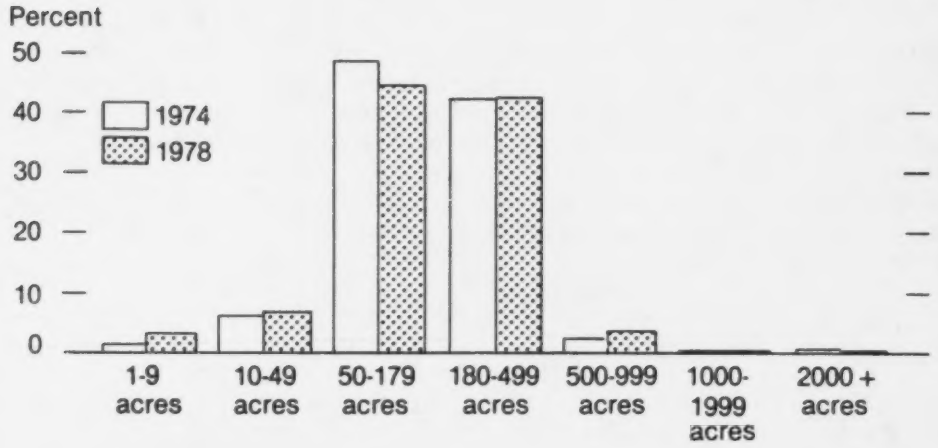
MARATHON COUNTY—AVERAGE FARM PROFILE

	1974	1978
Size (in acres)	187	195
Harvested cropland (as percent of total acres)	48	50
Hay land (as percent of harvested cropland)	57	64
Dairy herd size (head)[1]	45	44
Sales [2]	$22,888	$37,113
Value of land [2]	$60,757	$126,733
Value of machinery [2]	$22,727	$37,034
Value of livestock [1 2]	$20,540	$31,900
Value of land, machinery, and livestock [2]	$126,912	$232,919

[1] Not separating out beef cows, perhaps 4 percent of total.
[2] Current dollars, unadjusted for inflation.

Source: (26); see bibliography.

FIGURE 14.—Marathon County: Distribution of farms by acreage.



Source: (26); see bibliography.

In terms of commodity mix there was little change. There was a shift from corn silage to grass silage, and an increase in the use of hay and corn for grain. The most notable commodity change was an increase in the size and number of hog operations with more than 100 head.

ADJUSTMENT IN GENERAL

The trends in farm characteristics in the major agricultural counties do not always match the national trends (table 13 and fig. 16). Most of the farm characteristics for the eight counties fall in an apparently random fashion about the U.S. value: average size of farms, harvested cropland as a percent of total farmland, the proportions of sole-proprietorships, partnerships, corporations, part owners, and tenants, and the percentage of operators who work off-farm. For seven of the variables, however, a distinct pattern emerges of the general nature of agricultural change in the major producing regions, compared with the Nation.

Farm numbers are declining faster.

Land in farms is increasing faster.

The level of mechanization (measured in dollar value) is increasing faster.

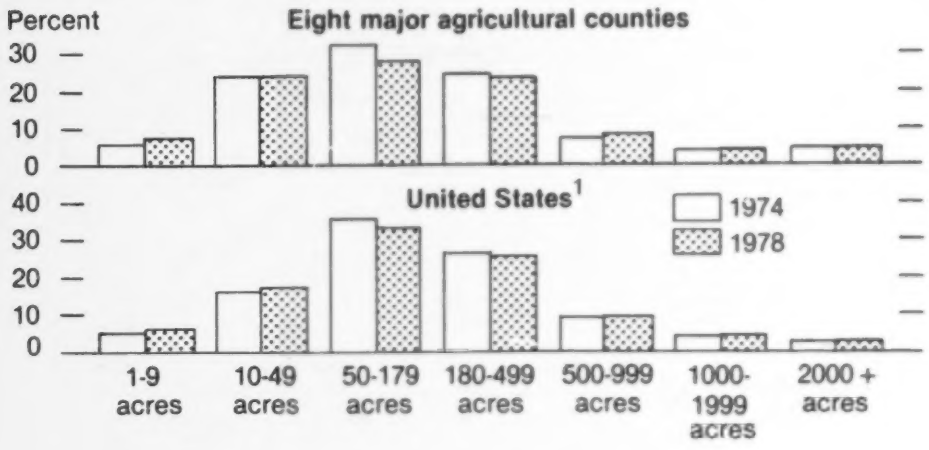
Full-owner farms are declining more rapidly.

The average value of assets (land, buildings, and machinery per farm; livestock not included) is increasing faster.

The average sales per farm is increasing faster.

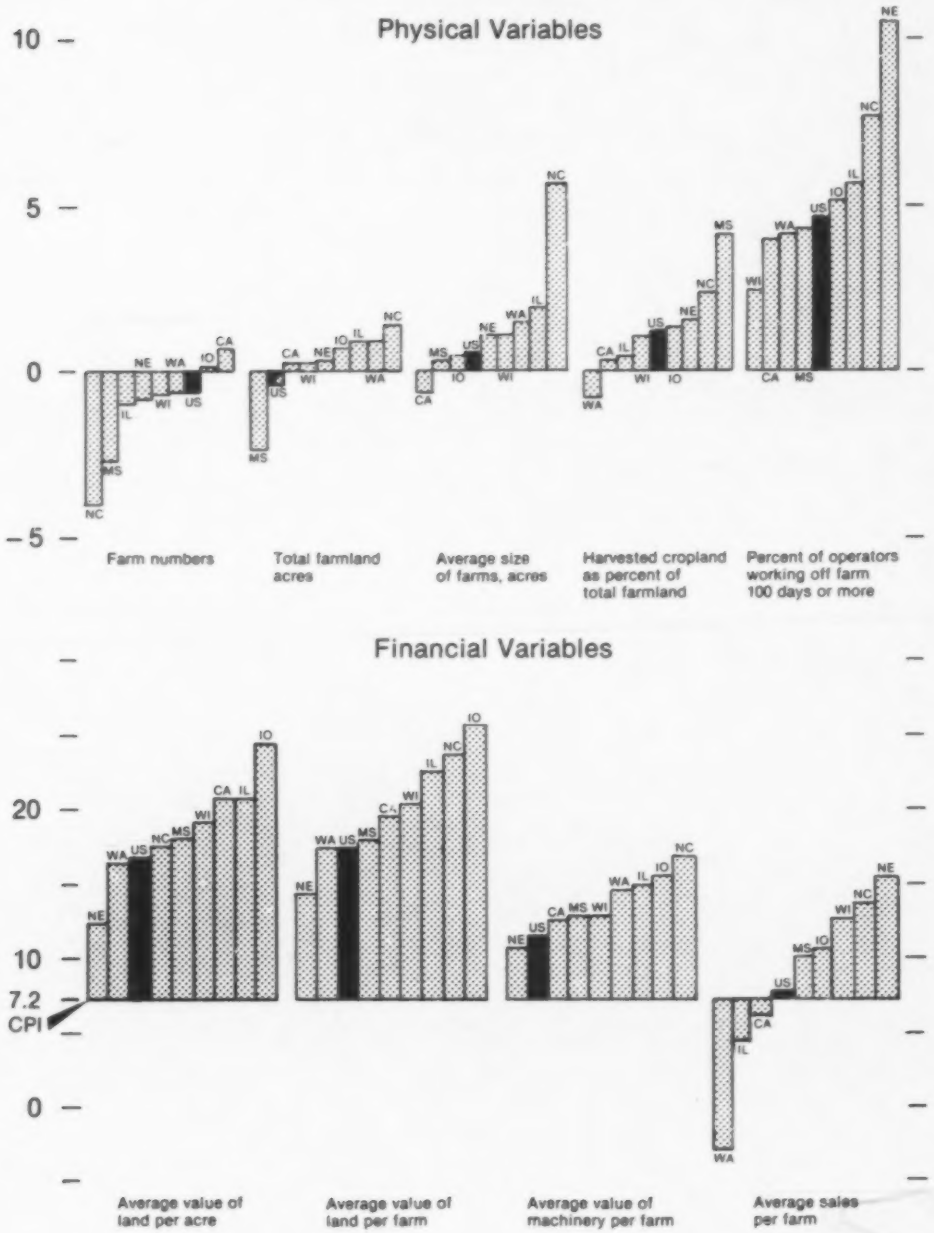
The distribution of farm size by acreage for the eight counties does not differ much from that of the United States as a whole (fig. 15). The change in the two distributions between 1974 and 1978 is likewise very similar.

FIGURE 15.—Distribution of farm size by acreage.



Sources: (25, 26); see bibliography.

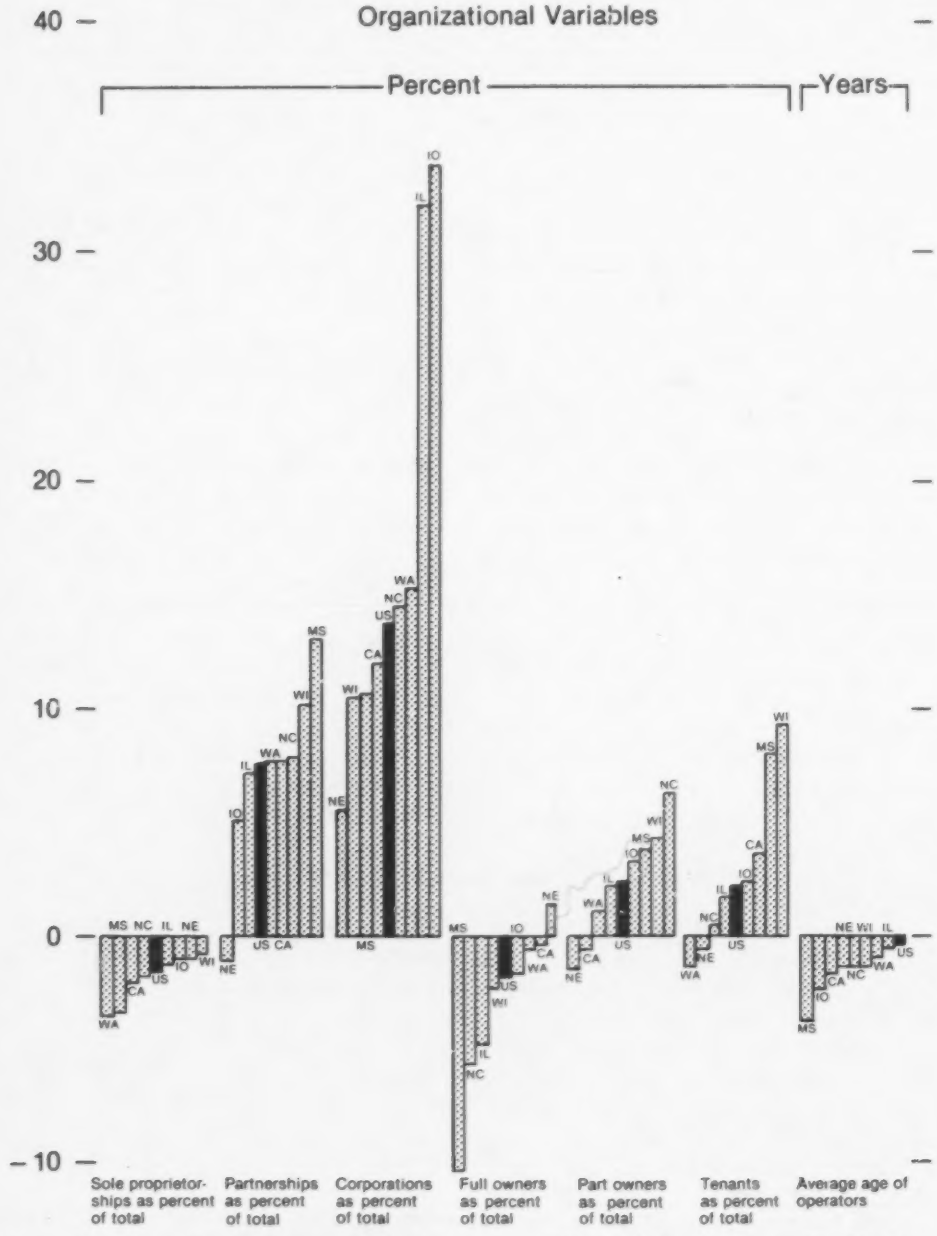
FIGURE 16.—Rates of change of farm characteristics, 1974–78, United States and eight major agricultural counties.



Legend:
CA = Fresno County, California
IL = McLean County, Illinois
IO = Delaware County, Iowa
MS = Sunflower County, Mississippi
NC = Pitt County, North Carolina
NE = Cherry County, Nebraska
US = Total United States
WA = Whitman County, Washington
WI = Marathon County, Wisconsin

The annual Consumer Price Index (CPI) and Producer Price Index (PPI) for the period 1974-78 equalled 7.2.

FIGURE 16.—Rates of change of farm characteristics, 1974–78, United States and eight major agricultural countries—Continued



Legend:
CA = Fresno County, California
IL = McLean County, Illinois
IO = Delaware County, Iowa
MS = Sunflower County, Mississippi
NC = Pitt County, North Carolina
NE = Cherry County, Nebraska
US = Total United States
WA = Whitman County, Washington
WI = Marathon County, Wisconsin

Source: (Derived from table 13 above.)

PERFORMANCE OF THE AGRICULTURAL SECTOR

Should we be concerned about the change in agricultural organization? To answer this question it is necessary to investigate the performance of the changing agricultural sector. Organization is important only as it affects performance. In this section, performance will be evaluated by how well the agricultural organization accommodates the desires of society: specifically, as it contributes to stable food supplies and prices, equitable levels of farm income, farm wealth, returns to investment, and world stability and development. If the current organization improves performance in terms of these criteria, then that organization performs well.

In undertaking such an evaluation, one must keep in mind:

The diversity of American agriculture. Because farmers are not a homogeneous group, we must not expect farmers' evaluation of performance to be unanimous. Some aspects of organizational change favor small farmers at the expense of larger ones, grain farmers at the expense of livestock farmers, and so forth.

The integration of agriculture into the national and world economies. Because of that, agricultural, domestic, and foreign policy are often inseparable, and policy decisions in one area have important impacts in another.

In the following sections, we describe major interests of farmers, consumers, and the Nation, and discuss the performance of the current agricultural sector with respect to those various interests.

FARMERS' PERFORMANCE CRITERIA

Farmers evaluate agricultural organization on three criteria—income, wealth accumulation, and returns to investment relative to other sectors. These three criteria do not represent all the interests of farmers, nor will high performance in terms of these criteria guarantee that all farmers will prosper. These criteria, nevertheless, are important and can be measured, and high performance on them will allow farmers the opportunities and freedom to pursue their more personal interests.

Income.—Changes in the agricultural sector and rising exports during the last decade significantly improved farm income. Traditionally, the farm problem was low income, but in 1973 and 1979 disposable per capita farm income from all sources exceeded disposable per capita nonfarm income (fig. 17). Farm income, which averaged 65 percent of nonfarm income in 1960–69, rose to 89 percent of nonfarm income in 1970–79. If the lower cost of rural living and the value of land appreciation (which is not current income but deferred income) are considered, then the average farmer was probably as well off as the average nonfarmer in the late seventies.

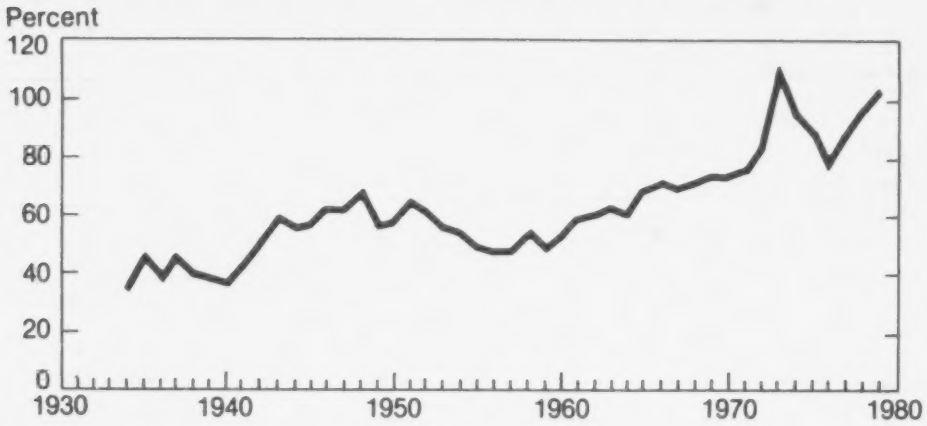
Farm income as a percent of nonfarm income has been increasing slowly over a number of years as a result of the gradual reallocation of underemployed resources—primarily labor—from the agricultural to the nonagricultural sector, where productivity has been greater. As farm families left the sector, the remaining farms could enlarge to sizes that generated an income capable of supporting a family. The reallocation of resources has been a slow process; despite decades of outmigration from agriculture, some excess labor still exists. Also, certain combinations of labor and capital that have become relatively inefficient due to technological change still persist. The land of many small farms, which cannot provide an adequate family income, could be farmed at a lower cost if it were part of larger operations. As labor continues to leave the agricultural sector, resources will probably recombine in a more technically efficient manner.

The extraordinary increase in agricultural exports in the seventies and the drawdown of commodity reserves were perhaps more important in raising farm income than the reallocation of resources. Without the new export demands, income would have continued to improve due to gradual resource adjustment but might still have remained considerably below nonfarm income. Foreign demand reduced excess capacity in the agricultural sector and raised prices, which in turn raised incomes.

The low-income problem was eased by strong export demand in the seventies, but this same demand created a new farm problem of income variability (fig. 17). This increased variability in farm income spawned the tractorcades in Washington, D.C., in the late seventies—one means of farmers' protesting agricultural policy. Many farmers expanded their operations and new farmers entered the sector after the record prices of 1973, with the expectation that high prices and income would continue. When farm income in 1976 sank very low, many farmers suffered financially. Farmers cannot effectively plan their operations if they are unable to make reasonable price predictions. This results in wasted resources and dissatisfaction on the part of farmers when actual prices are less than expected. When actual prices are greater than expected, the Nation still suffers from misallocation of resources but farmers receive unexpected income. It is not clear whether price variability inhibits or promotes farm investment. The conventional wisdom is that uncertainty restrains investment. An alternative theory is that farmers make capital investments in those years when prices are high because they have both the means and the incentive—income tax avoidance—to do so (*11*). [2]

[2] Italicized numbers in parentheses refer to sources cited in the bibliography.

FIGURE 17.—Disposable per capita farm income from all sources as a percent of disposable per capita nonfarm income from all sources.

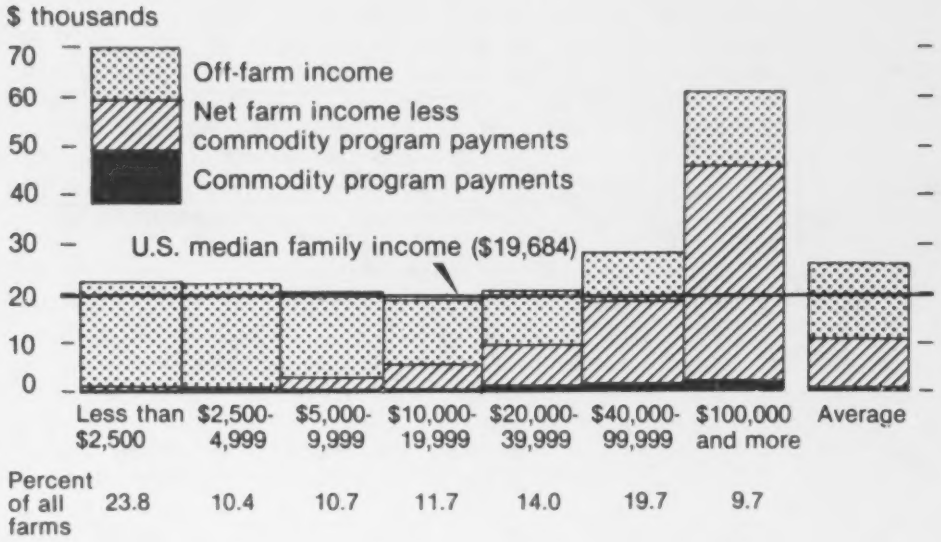


Source: (17).

International market instability is of crucial concern to the United States since a large proportion of our production is sold abroad. In the period 1976–79, the United States exported 58 percent of its wheat, 40 percent of its soybeans, 61 percent of its rice, 31 percent of its corn, and 33 percent of its grain sorghum. More and more countries isolate their domestic markets from international market forces with state trading agencies or regional trade organizations (such as the European Economic Community and the Andean Pact). As a result, countries that are major exporters, have a market economy, and are relatively open to international market forces, bear the brunt of market instability—widely fluctuating prices for producers and consumers. Since the United States is one of the few countries in this category, the continued growth of U.S. exports will increase price variability (*4*).

Distribution of farm income, which includes farm-generated income, off-farm income, and Government payments, is also an important aspect of performance. The distribution of farm income has improved over the decades, chiefly due to the growth of off-farm income. While off-farm income has grown in importance, government payments have declined. If all sources of a farmer's income are considered, distribution of farm income is quite equitable (fig. 18). Without the growth of off-farm income, income distribution would be a severe problem.

FIGURE 18.—Average farm income by sales class, 1979.



Source: (17).

Farm-generated income.—Large producers account for most of the farm-generated income because they produce more. Farmers with sales of $40,000–$99,999 and $100,000 and more accounted for 29.4 percent of the farmers and 74.2 percent of the farm-generated income in 1979. These are the large commercial farmers who derive (on the average) at least two-thirds of their income from farming. Average farm-generated income for these two largest sales classes was $19,553 and $47,827, respectively.

Mid-sized farmers with sales between $10,000 and $39,999 accounted for 25.7 percent of all farmers and 17.7 percent of the farm-generated income in 1979. Farm-generated income as a percent of total income for farmers in these two sales classes was 27.2 and 47.6 percent. These farmers, with operations that are too small to generate full-time employment at a satisfactory income level, have to augment their income with off-farm employment, and are sometimes caught in a bind. A small farm operation that does not provide sufficient income may require so much labor that it is difficult to get enough off-farm work to achieve a decent income. Farms with sales of $10,000–$19,999 are an excellent example of this situation (fig. 18). They are the only farmers in this group with incomes lower than the median U.S. family income. Struggling, beginning farmers putting a lot of time into small farm operations and working off-farm to earn capital, retirement farmers with no desire for much off-farm employment, small farms in general, and some poverty farmers would fit the characteristics of this category. In a year with low agricultural prices, they would be in a very difficult income situation.

Farms with sales less than $10,000 (44.9 percent of all farmers) are mostly rural residences with insignificant farm-generated income. Their off-farm income is comparable to the median U.S. family income.

Government payments.—Direct Government payments in 1979 amounted to $1,375 million, a very small proportion of total farm income

and much less than the $3,030 million of payments in 1978. As commodity prices rose due to high export demand, program payments became less significant to supplement incomes or to restrict supplies and therefore had less impact on the performance of the sector. Payments could be justified in earlier periods because they helped sustain the agricultural sector until the agricultural population and labor demands were more in balance. Now that most of the necessary migration has occurred, the payments hinder the movement of labor out of agriculture. The payments still serve to reduce a farmer's risks by providing an income floor, thereby allowing farmers to improve their decisionmaking.

Government payments had the greatest impact on the top three sales classes ($20,000–$39,999, $40,000–$99,999, and $100,000 and over) as percentage of total income in 1977–79. Of the three, farmers in the $20,000–$39,999 sales class gained most from the Government payments. The payments accounted for 4.15 percent of their total income in 1979 and 10.29 percent in 1978, a fairly bad year for farmers. The average total income in this sales class would have been below the median U.S. family income without commodity program payments. The $5,000–$9,999 sales class would also have been below the median income without the program payments. Table 14 shows payments as a percent of the average income of all farmers in each class, not just for participants in the program. The average payments would probably be quite a bit higher in the largest sales class if payments were calculated only for commodity program participants.

Although payments were a small percentage of the income of farmers with sales of $40,000 or more, the total amount of payments to that group was $862 million. Payments to farmers with sales of $10,000–$39,999 were $380 million. Payments to the smallest farmers amounted to $133 million.

TABLE 14.—GOVERNMENT PAYMENTS AS A PERCENTAGE OF FARM-GENERATED INCOME AND TOTAL INCOME BY SALES CLASS

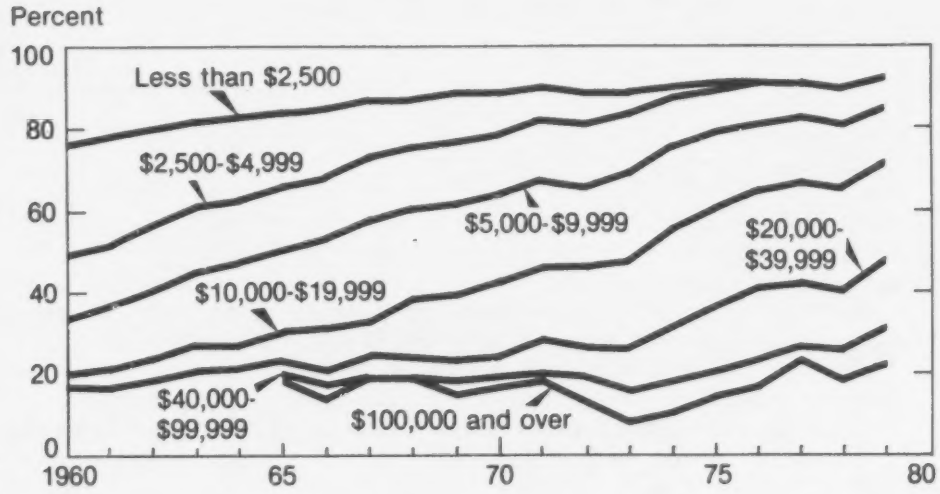
Sales class	1979		1978		1977	
	Net farm income	Total income	Net farm income	Total income	Net farm income	Total income
Less than $2,500	2.95	0.24	7.30	0.70	5.60	0.53
$2,500 to $4,900	9.35	.75	20.23	2.12	17.80	1.65
$5,000 to $9,999	8.37	1.26	18.25	3.51	15.58	2.77
$10,000 to $19,999	7.10	2.06	15.60	5.52	12.71	4.31
$20,000 to $39,999	8.02	4.15	17.32	10.29	13.98	8.13
$40,000 to $99,999	5.95	4.13	13.20	9.93	10.63	7.87
$100,000 and over	3.03	2.37	7.04	5.77	7.31	5.61
Total	5.39	2.24	13.37	5.88	11.81	4.45

Source: (17); see bibliography.

Off-farm income.—Off-farm income raised the average income of all farmers (with the exception of those with sales of $10,000–$19,999) above the median U.S. family income in 1979. Off-farm income has fostered a more equitable distribution of income within the farm sector and has also helped to stabilize the farm economy as commodity prices fluctuate. Since production has become so specialized, this risk reduction aspect of off-farm income is particularly important.

Rural residences (farms with less than $10,000 in farm sales per year) have off-farm incomes equal to the median income. That is expected since farming is a minor enterprise. Farms with sales of $40,000 or more have very little off-farm income. They probably do not have the time or the need for off-farm work, since their income is quite high. Farms with sales of $10,000–$39,999 are in an intermediate position with substantial farm-generated income. Off-farm income as a percent of their total income increased rapidly over the last decade. Average off-farm income for all farms rose from 30.8 percent of all farm income in 1950 to 48.1 percent in 1979. Figure 19 shows the increased proportion of off-farm income to total income by farm sales class. Higher levels of off-farm income might be a factor behind the slowing outmigration from agriculture. Farmers may prefer to retain their assets and rural residences, while taking off-farm work to supplement their farm earnings. Off-farm income, like high farm income, retards outmigration.

FIGURE 19.—Off-farm income as a percent of farm income by sales class.



NOTE.—Data for $40,000–$99,999 and $100,000 and over sales classes not available prior to 1965.

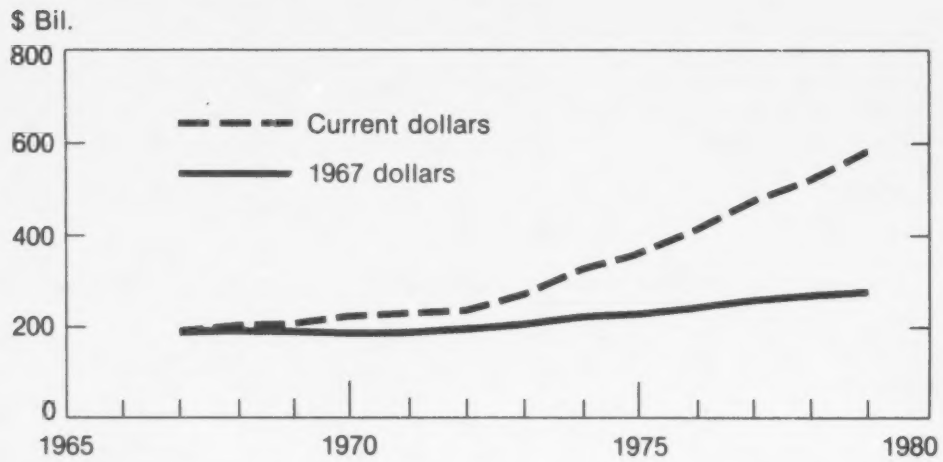
Source: (17).

Wealth.—Although farm income has traditionally been lower than that of the nonfarm population, farmers have always held a considerable amount of wealth in the form of assets, particularly land. In recent years, as farm size has increased and farmland has appreciated rapidly, farmers' wealth has grown in both real and nominal terms (fig. 20). Such additions to wealth (capital gains) are very important because they enable established farmers to secure more credit against their current holdings to purchase additional land and equipment.

Increased wealth, due to land value appreciation, would generally be considered positive performance for existing farmers (although it does complicate inheritance of a farm) but it is not necessarily so in terms of national goals. In a period of rapid land appreciation,

farmers who own land have a clear advantage over farmers who rent land and over others who would like to enter farming. Many prospective farmers are unable to enter the farm sector because the cost of an economically viable farm is too high for someone who does not already own land or have other large and secure sources of income.

FIGURE 20.—Farm sector assets, January 1960–78.



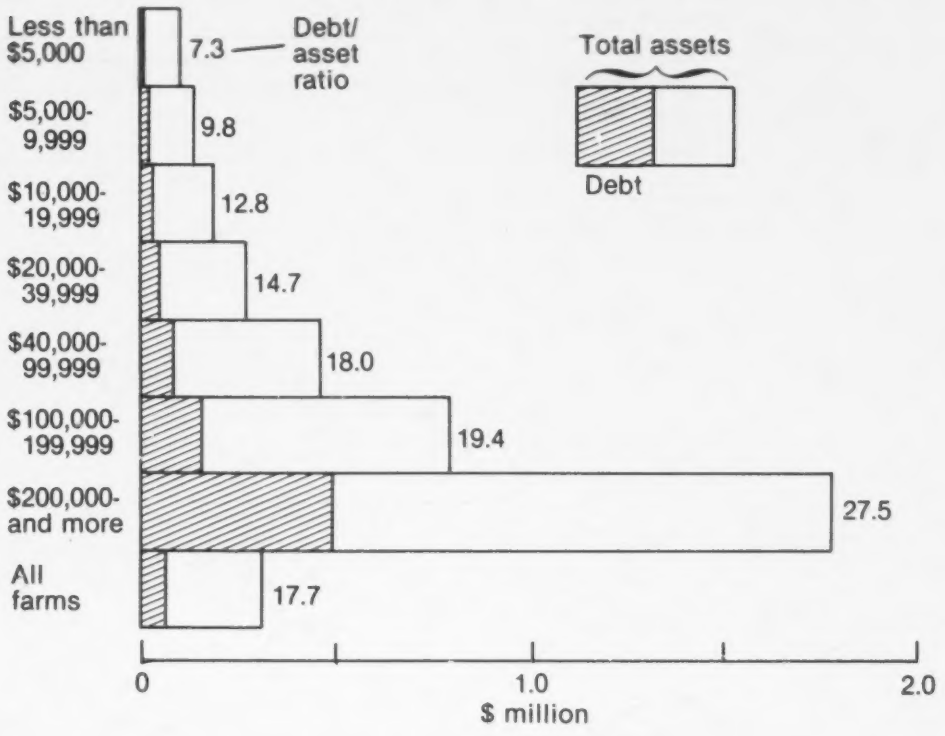
Source: (12).

Our future productivity may be severely diminished by this situation which essentially reserves farming for existing farmers and their descendants. Estate tax laws have been eased so that heirs can afford to inherit a family farm. These laws, coupled with land value appreciation, seem to be protecting current family farms instead of the family farming system, with the result that we may be in danger of developing a closed agricultural economy.

Another problem that may emerge due to the high value of farms is the fractionalization of landholdings (*12*). If a farm is left to one's children, one child may not be able to buy out the interests of siblings who want their share of the inheritance in a more liquid form. Parts of one farm may then be sold off, possibly to outside investors willing to rent back the land to the heir remaining in farming. Farm operations could, therefore, continue uninterrupted, but with a separation of ownership and management, an undesirable feature for farmers who understandably want absolute control over their means of livelihood. How such fractionalization affects performance from the national point of view is unclear.

Farm assets in 1979 ranged from $94,005 for farmers with sales of $5,000 or less, to $1,783,316 for farmers with sales of $200,000 or more (fig. 21). Farmers with sales of less than $40,000 controlled 53.9 percent of total farm assets and produced 14.65 percent of the cash receipts while farmers with sales of $200,000 and over controlled 18.95 percent of the farm assets and produced 43.23 percent of the cash receipts. Small farmers with off-farm work can afford to farm as they like, not for maximum farm profits and efficiency. They use more time- and labor-saving equipment per acre than a larger operation because of the time constraints imposed by their off-farm employment (*10*). This improves the farmer's well-being, but is a misallocation of resources from a national point of view.

FIGURE 21.—Average farm wealth and debt per farm by sales class, 1979.



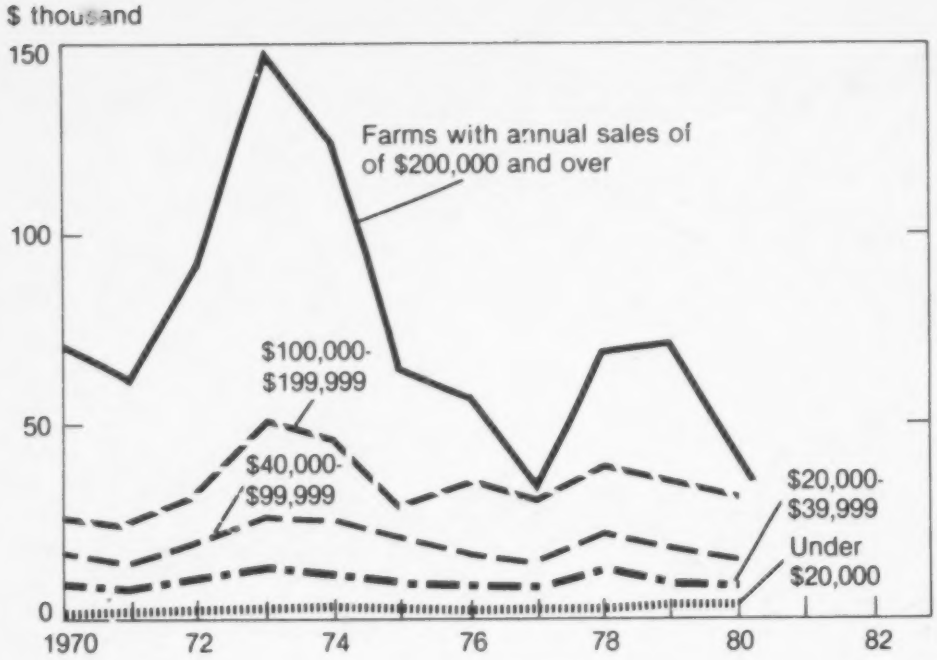
Source: (17).

The debt/asset ratios range from 0.073 for the smallest size class to 0.275 for the largest size class. Large farmers have a much higher percentage of debt than do small farmers; these are the commercial farmers who are aggressively expanding their operations. As discussed above, farms have to increase in size to keep up with the average U.S. nonfarm income, or decrease in size and take off-farm work. The appreciation potential of land is an important incentive to expand. Large farmers have more assets to use as leverage for expansion. Many smaller farmers, most of whom are only part-time, do not see expansion as a high priority, and often lack the assets to bid against large farmers for land purchases.

High debt/asset ratios imply large annual financial obligations, which make it difficult for farmers to survive severe price fluctuations. The large farmers have the most severe income variations because their income is almost entirely farm generated (fig. 22). The vulnerability of these farmers who produce most of the food is a national issue of some concern. One of the main virtues of family farms is their ability to absorb years of low income and still provide stable food supplies (*1*). Family farms, however, are usually thought of as farms with high equity, relatively low variable costs, and diverse crop and livestock mixes—not an accurate image of current family farms. Debt expansion, modernization requiring purchased inputs, and specialization are making family farmers less able to withstand the bad years.

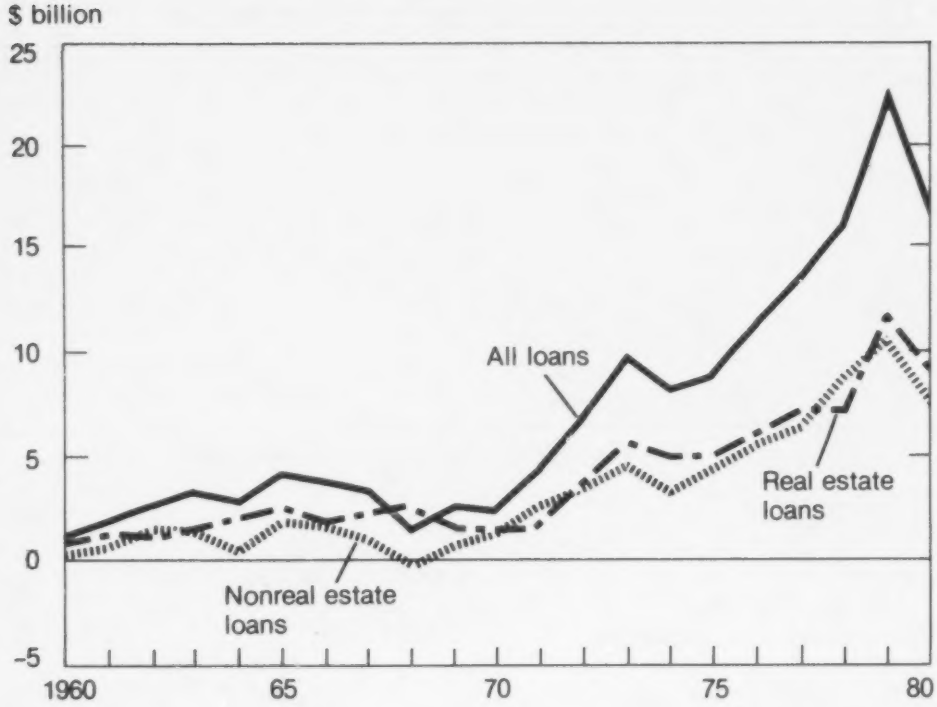
The value of farm debt increased dramatically in the seventies (fig. 23), but as a percentage of assets it was relatively stable ranging between 15.5 and 17.1 percent. Real estate debt was more important than non-real estate debt during the last two decades, accounting for just over 50 percent of total farm debt. The value of non-real estate loans also rose because of the increase in cost of petroleum-based products such as fertilizers and fuels, which are important farm inputs.

FIGURE 22.—Average net farm income by sales class.



Source: (20).

FIGURE 23.—Annual change in farm debt.



Source: (20).

Return to equity.—Return to equity consists of two components—current income returns and real capital gains (corrected for inflation). Current income returns from farming have been very stable over the last 30 years with the exception of the 1970-75 period, which was influenced by exceptionally high commodity prices. The increase in income and investment has been commensurate resulting in a near constant rate of return. The brief increase in returns in the early seventies misled farmers by encouraging some to remain in farming and others to enter.

Income flows from equity investment vary substantially within the sector according to the farm's sales class as shown below (1979 data):

Sales class:	*Percent return to equity*
Less than $5,000	−1.47
$5,000–$9,999	.25
$10,000–$19,999	1.92
$20,000–$39,999	3.69
$40,000–$99,999	5.07
$100,000–$199,999	6.12
$200,000 or more	8.46
All sales classes	4.37

Source: (17).

Over 70 percent of the farmers derive returns less than the average, and 34 percent have negative returns. If small farmers can make a

satisfactory living on a small farm combined with an off-farm job they are content, even if their returns to investment are much less than those of larger farmers. Total returns to farming could be greater if production assets in the smaller farms were redistributed among larger farms. Output probably would not increase significantly, but returns to investment would since the larger farms produce at lower cost.

Capital gains have been very erratic with very high values in the seventies. The slow rate of outmigration from agriculture in the seventies may have been due, in part, to the spectacular capital gains. Total rates of return to investment in agriculture exceeded rates of return to common stock and long-term bonds for the last 15 years. Table 15 shows the returns for each type of investment. Long-term bonds had the best current income recently (with the exception of 1970–74), and farm assets had the best capital gains, but farm assets clearly outperformed the other two investments in total returns.

Because of the attractiveness of land as an investment, nonfarmers and farmers alike are buying land as an investment, even though a lot of farmland does not pay for itself out of current income with present commodity and land prices. Over the past decade, controversy has arisen over farmland purchases by foreigners, corporations, pension funds, and wealthy individuals. Some States enacted laws to prevent specific types of nonfarmer investment. Despite the media attention, however, such investment is still relatively small. While such investments may be good for the small investor, in the aggregate they do not benefit agriculture. This type of investment contributes to land price escalation, difficulty of entry for the young and new farmer, and instability in the land market.

Large institutional investment in farmland could be particularly detrimental. Buying and selling large amounts of land depending on its daily relative position to other investments could disrupt the agricultural sector.

TABLE 15.—RATES OF RETURN TO STOCKS, BONDS, AND FARM ASSETS, SELECTED PERIODS, 1950–79

[Percent yield]

Period	Current income			Real capital gains			Total		
	Common stock	Long-term bonds	Farm assets	Common stock	Long-term bonds	Farm assets	Common stock	Long-term bonds	Farm assets
1950–54	5.85	2.61	4.05	11.95	−1.69	3.28	17.53	0.92	8.23
1955–59	3.94	3.38	3.18	13.12	−4.65	4.02	17.06	−1.27	7.19
1960–64	3.20	4.00	3.61	7.45	−1.49	2.42	10.65	2.51	6.02
1965–69	3.18	5.01	4.46	1.61	−9.09	2.48	4.79	−4.08	6.94
1970–74	3.47	6.25	6.26	−8.66	−8.69	6.15	−5.19	−2.40	12.41
1975–79	4.68	7.49	4.50	−4.09	−12.06	5.10	.59	−4.57	9.60

Source: (21); see bibliography.

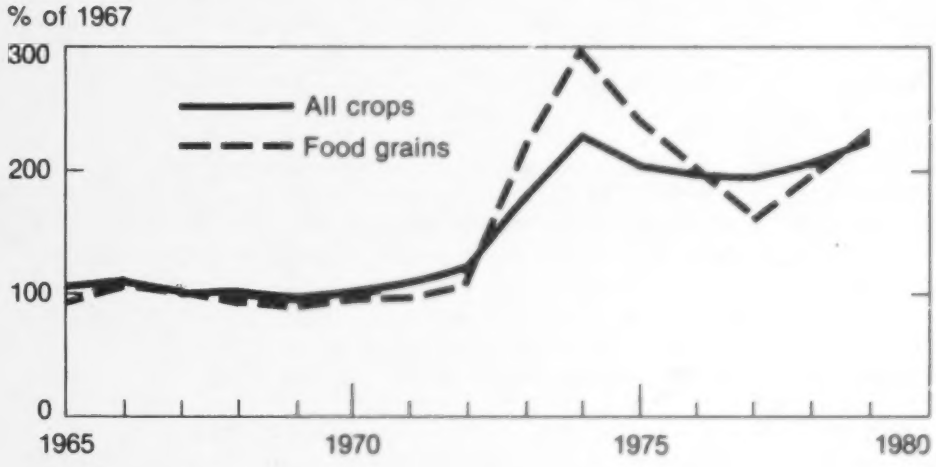
CONSUMERS' GOALS

Consumers (both domestic and foreign) want an assured supply of high-quality, reasonably priced food. There is some debate about the desirability of stable versus variable prices but everyone agrees that consumers do not want high prices. The American agricultural sector has always provided a bountiful and high-quality supply of food, and over the past decade, the rest of the world has also come to depend on America's food production. Given the U.S. production

capacity, a domestic food shortage is unlikely, but it is possible that food prices could be higher under certain world conditions.

In the short run, the prices farmers receive do not depend on the costs of production, but on supply and demand. In the long run, however, if high costs of production depress profits, some farmers will abandon farming or scale back their operations. The lower production will raise prices. Farm product prices increased in real terms in the last decade, after decades of decline, particularly after the 1973 Russian wheat sale, but prices depended mostly on changes in farm markets, not changes in farm production units (fig. 24).

FIGURE 24.—Relative prices received by farmers.



Source: (15).

Rising farm product prices received by farmers are not perfectly related to rising prices paid by consumers. Much of the retail price of food reflects value added by the processing/marketing sector. While consumer food prices have been increasing, food costs as a percentage of disposable income declined between 1977 and 1980. Americans still spend a lower percentage of their disposable income on food than any other people (table 16).

TABLE 16.—SHARE EXPENDITURES ON FOOD, BEVERAGES, AND TOBACCO OF TOTAL PRIVATE DOMESTIC CONSUMPTION EXPENDITURES, 1977

Country	National disposable income per capita (U.S. dollars)	Consumption expenditure on (percent)—			
		Food, beverage, and tobacco	Food and nonalcoholic beverages	Alcoholic beverages	Tobacco
India [1]	133	62.5	59.3	0.8	2.4
El Salvador	434	40.9	35.7	.6	1.6
South Africa	1,436	32.7	24.4	5.4	2.9
Venezuela	2,598	42.8	38.0	3.0	[3] 1.8
U.S.S.R.	2,658	45.0	34.0	9.0	[3] 2.0
Poland	2,896	45.0	30.8	[3] 11.5	2.7
Japan [1]	4,291	28.3	23.3	3.0	[3] 2.0
Australia	6,559	25.9	17.2	6.3	2.5
West Germany	7,328	27.2	22.0	[3] 3.0	2.2
United States	7,666	16.5	13.6	1.4	1.4
Switzerland	8,823	29.4	22.2	4.7	[3] 2.5

[1] For 1976.
[2] Distribution within groups was estimated.
[3] Expenditures for alcoholic beverages were estimated from reported expenditures for all beverages.

Source: (8); see bibliography.

CONCLUSION

We cannot say unequivocably what effects the changes in the organization of agriculture have had on the sector's performance. Performance has changed in a number of aspects, but overall the direction of change is not distinguishable. Farm income improved, but income variability became a serious problem. Farm wealth increased dramatically, but the increases in farm debt placed major producers in a vulnerable position. High estate values also made it difficult for children of farmers to inherit the family farm. Total returns to investment increased because of high capital gains on land, but this attracted outside investors which hampered some farmers' plans for farm expansion. U.S. consumers paid higher food prices, but they still spent a smaller portion of their income on food than consumers in any other country. Greater efficiency was achieved in the production sector through increasing use of labor-saving technology, but this may have contributed no overall gain of efficiency in the national economy because the recession in the late seventies made it impossible for other sectors to absorb displaced agricultural labor readily.

The responsiveness of the farm sector to unpredictable changes was enhanced by the increasing integration of the sector into society and the economy, but the huge capital requirements of beginning farming restricted the entry of young people from nonfarm families. Other developments impaired responsiveness by decreasing diversification within the sector, making it more vulnerable to the risks of unpredicted change. Production continued to become more specialized by region for most commodities; dependence on long-distance hauling for distribution increased; operations became more dependent on purchased inputs that have few substitutes (petroleum, fertilizer); and in consequence, operations also became more dependent on credit.

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APPENDIX

The primary data source for this report is the 1978 Census of Agriculture. Several changes in the data collection procedures and farm definition over the years have rendered the data between censuses not strictly comparable. Therefore, whenever we made a comparison between census years, or calculated rates of change, we found it necessary to adjust the data for these changes. Four changes were crucial to data use in this report: (1) the change in farm definition in 1974, (2) farms excluded in country totals, (3) exclusion of abnormal farms (institutional farms, experimental and research farms, and Indian reservations), in sales class figures, and (4) characteristics that were not reported for farms with annual sales of less than $2,500.

The previous definition of a farm (used for the 1959, 1964, and 1969 censuses and for the 1974 preliminary county reports) was any place with less than 10 acres from which $250 or more of agricultural products were sold or would normally have been sold during the census year, or any place of 10 acres or more from which $50 or more of agricultural products were sold or would normally be sold during the census year. The new definition of a farm, for statistical purposes, counts any place from which $1,000 or more of agricultural products were sold or would normally have been sold during the census year. There is no acreage delineation in the current definition. To adjust the 1974 and 1978 farm numbers to the old definition, those farms excluded by the new definition are counted in the less than $1,000 sales class. For example, in 1974 the 152,110 farms excluded by the new definition constitute the class of farms with less than $1,000 in sales (app. table 1).

Another adjustment was made to the data to exclude farms that were not in county totals in previous censuses. These figures reflect a better measurement by the Bureau of the Census, since farms that were not reported in prior years, due to omission from the census mailing list, were reported through physical surveys taken by the census. For comparability these county totals must be excluded from the 1978 data. For example, in 1978, 220,867 farms were not included in county totals (app. table 1). For consistency with the definition change: 468,973 farms excluded by the new definition minus farms not in county totals leaves 248,106 farms counted in the less than $1,000 sales class.

The breakdown of farms into sales classes also requires adjustment for consistency. Abnormal farms cannot logically be included in standard categories. They are counted in the total farm numbers but not in the $2,500 or more classification. For comparison with previous data, these farms must be excluded. In 1974, all farms numbered 2,466,123, under the old definition. Taking out abnormal farms (2,238) leaves 2,463,885 which is the remaining total shown for farms by sales class (app. table 1).

A final adjustment used in this report also deals with sales class data. For some categories (value of agricultural products sold, type of organization, principal occupation by residence, and some production expenses) characteristics were not reported for farms with less than $2,500 in sales. These data were not available in 1974. For this reason, discussion has been in terms of farms with sales of $2,500 or more rather than in terms of all farms for comparisons of these characteristics between censuses.

APPENDIX TABLE 1.—FARM NUMBER ADJUSTMENTS FOR CHANGE IN FARM DEFINITION, NOT INCLUDED IN COUNTY TOTALS

Adjustments	Number of farms		
	1969	1974	1978
Reported total, all farms	2,730,250	2,314,013	2,478,642
Plus farms excluded by new definition	[2] 570,904	152,110	468,973
Total adjusted to old definition	[2] 2,730,250	2,466,123	2,947,615
Farms not included in county totals for all farms	(1)	(1)	220,867
Farms excluded by new definition and not included in county totals	(1)	(1)	250,846
Total, excluding farms not in county totals	2,730,250	2,466,123	2,475,902
Special adjustments for economic class distribution: Abnormal farms	2,111	2,238	2,302
Economic class total (old definition)	2,728,139	2,463,885	2,473,600
Total farms with sales greater than $2,500	1,696,501	1,695,047	1,864,687
Plus farms excluded by new definition	(1)	(1)	(1)
Not included in county totals	(1)	(1)	69,749
Adjusted total	1,696,501	1,695,047	1,794,938
Includes: Some farms with sales less than $2,500	37,182	32,720	(1)

[1] Not available.
[2] The new definition took effect in 1974, therefore in 1969 the 570,904 farms which would have been excluded under the new definition are included in the report total; and hence the report and adjusted totals do not differ from 1969.

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